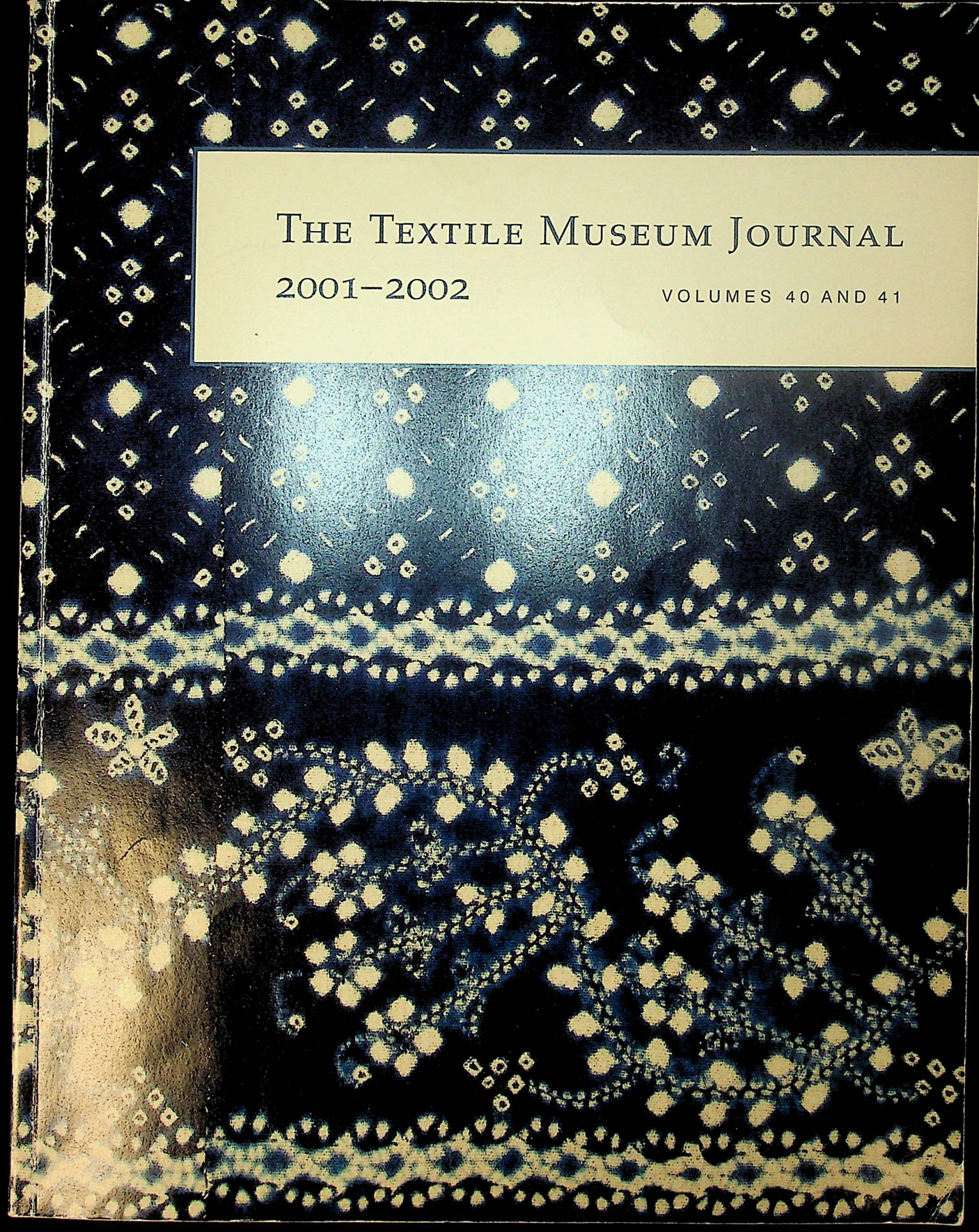
The Textile Museum Journal

2001–2002

VOLUMES 40 AND 41



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Front and back covers: Detail of skirt, attributed to Vizarrón de Montes, Querétaro, Mexico. The Textile Museum 1976.24.11, given in memory of Rene d'Harnoncourt by his family. See Davis, p. 56, fig. 9.

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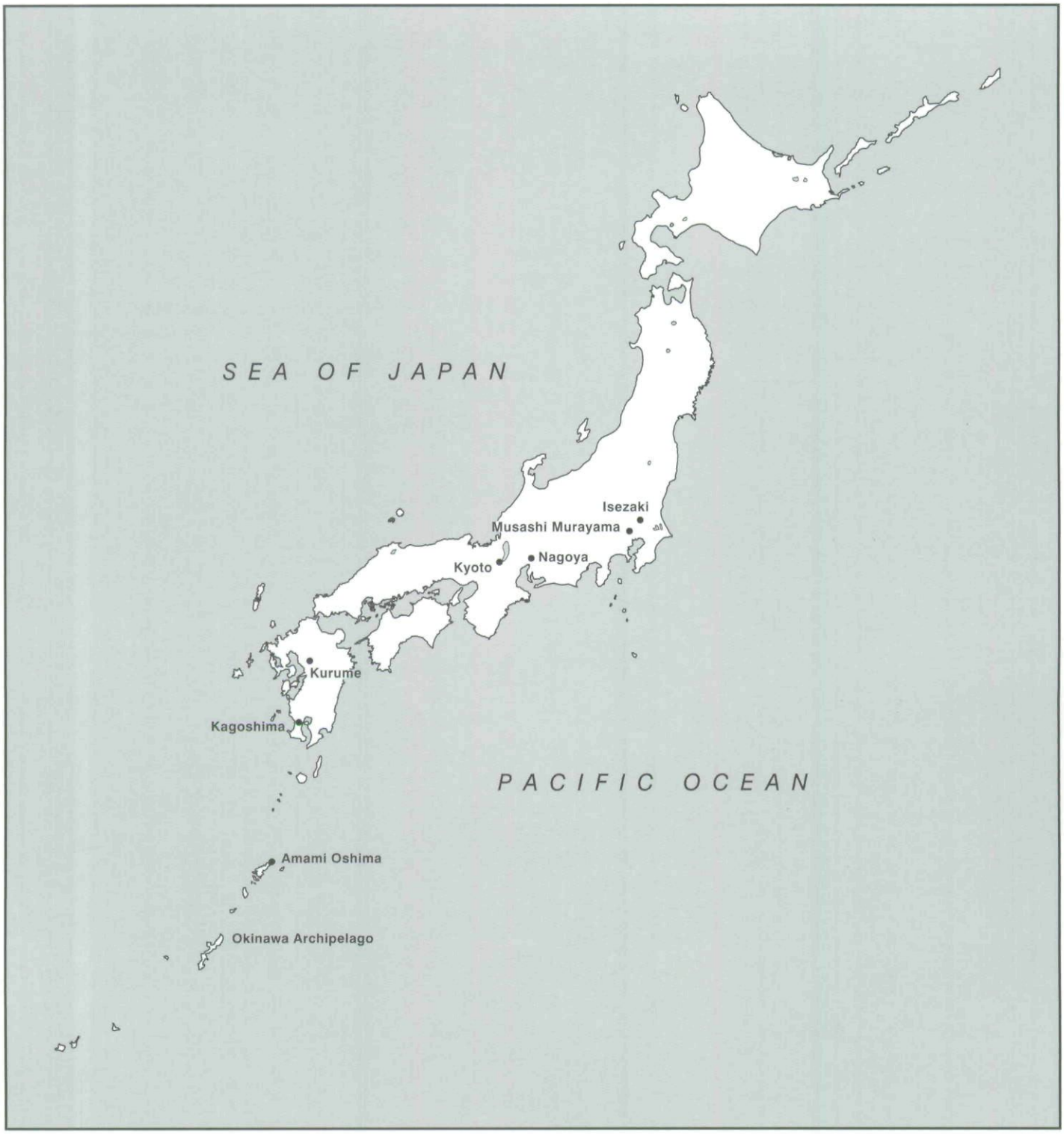


Fig. 1. Regional sites of *kasuri* production related to this article.

The Effect of Western Textile Technology on Japanese *Kasuri*: Development, Innovation, and Competition

Keiko Kobayashi
Translated by Naomi Nagano

Japanese kimono textiles in the early Showa period (1926–1941) were gay and beautiful. This was the last flowering of the modern textiles that appeared in the Meiji period (1868–1912) and matured in the Taisho period (1912–1926).[1] The technical development and maturity of *Oshima kasuri*, produced on Amami Oshima island in southwestern Japan, was no exception (fig. 1). This article chronicles the development of *Oshima kasuri*, which was influenced by the use of graph paper, an imported technology from Europe, and considers the influence of Oshima's innovations on other *kasuri* producers.

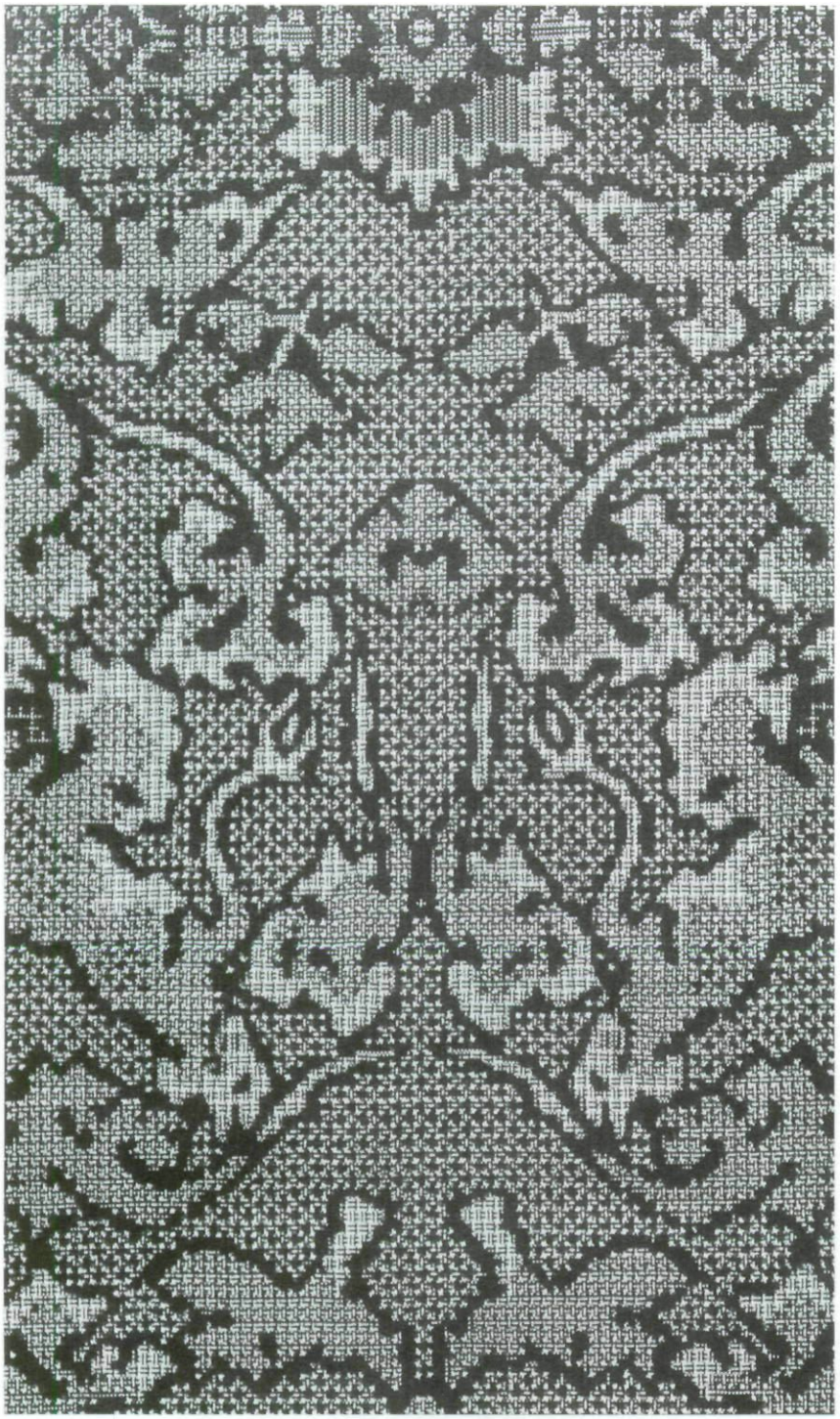
In its most general usage, the word *kasuri* refers to the technique of binding by hand threads to be resisted.[2] *Kasuri* is a textile woven from threads with resist patterns on both the warp and weft threads. *Oshima kasuri* is perhaps the world's tiniest double *kasuri*. The technique was developed in Amami Oshima after the Meiji Restoration of 1868. Among the many different types of *kasuri* produced in different regions of Japan, *Oshima kasuri* has been especially valued for its high technical qualities and innovative designs.

Orijime, woven-resist *kasuri*, uses a loom to resist the threads for a *kasuri* textile. Designs for the *orijime* patterns were originally drafted on a plain piece of paper by using simple dot and line marks accompanied by written explanations. Only geometric patterns are possible with this method of patterning. The designs in the *Oshima kasuri* show a parallel development, becoming more complex as Japan achieved modernization. What began as repeats of simple geometric patterns were transformed into designs with a pattern-on-pattern effect. In the mid-development stage, crosses transformed into intricate checkered motifs, and circles and squares were filled with kaleidoscopic designs using the basic pattern elements of the dot and line. Complex designs were made possible by the importation of graph paper and the understanding of its use, as Japan ended its long isolation from the West. In the late 1920s, the design and weaving techniques of *Oshima kasuri* reached their highest level of sophistication with organic designs of flowers, birds, and animals with a color and weave effect to exhibit dimensionality. *Kasuri* designs of other production sites show similar transformations, responding to the development of *Oshima kasuri*.

The historical development of *kasuri* patterns and weaving techniques has been previously documented for individual regions of production as part of regional histories. The relationships among the developments of separate regions, which derive from technological transfers from one production site to another, and the reasons for the maturity of the craft as a whole have not been analyzed. The development of *kasuri* fits within the historical context of modern Japan and comprises an important movement in the history of Japanese traditional textiles.

Kasuri textiles have dominated a large part of the garment history of modern Japan, employed regularly both for everyday wear and for special occasions by all classes of Japanese. Today only a few weavers remain who can produce the highest quality *Oshima kasuri* (figs. 2 and 3a–b). Although *Oshima kasuri* requires the finest and most meticulous craftsmanship, it has not been protected by the government as a cultural property.[3] This is because it does not, strictly speaking, involve "hand-tying" and because the production of *kasuri* is carried out by specialists. Because of modern categorizations that promote preservation of "art" as opposed to "non-art," the deaths of aging *kasuri* craftsmen are leading to the demise of a specialized garment tradition of modern Japan. Younger craftspeople have distanced themselves from the trade because of long hours, low compensation, and lack of prestige. Such crafts have not received official government recognition.

Ironically, the artistic development of *kasuri* was enhanced by modern technological changes derived from the West, especially the importation of the Jacquard mechanism, which aided craftsmen in creating highly complex designs (figs. 4a–c). Yet it is modern concepts of economic productivity that have led the craft into decline. Designers of *Oshima kasuri* were able to develop their designs into full maturity because of their ability to use the graph paper that was imported to Japan along with the Jacquard mechanism. Modern progress in transportation and communication encouraged competition among craftspeople in various parts



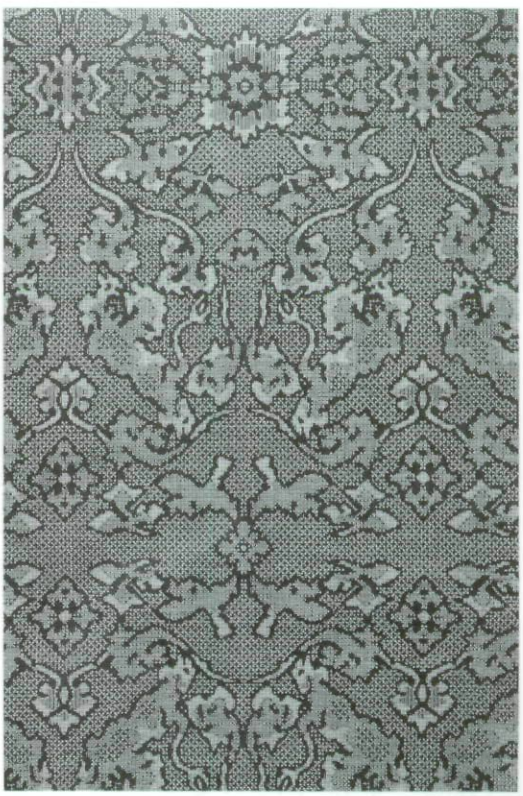


Fig. 2. The highest quality *Oshima kasuri* produced today by the Ono family and a group of their craftsmen (below). Detail showing original size (left).

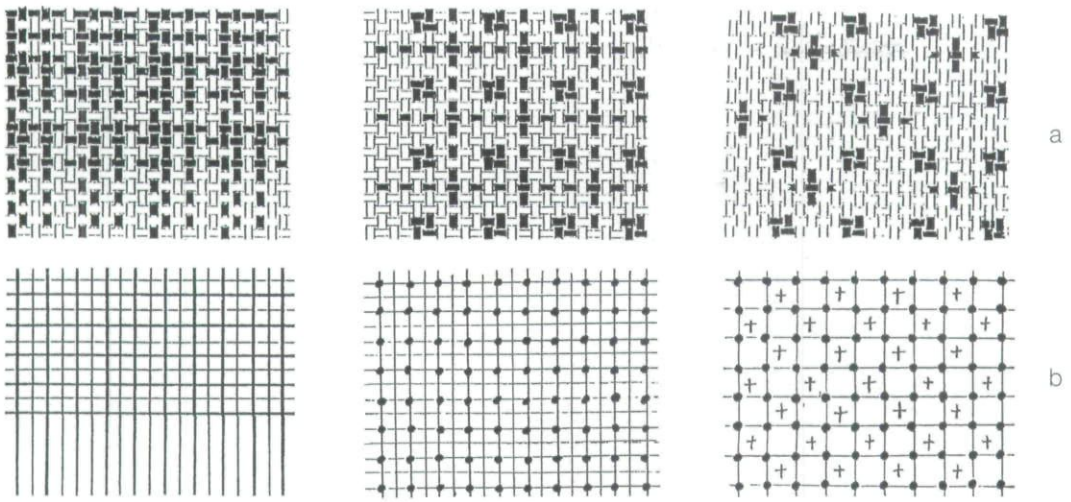


Fig. 3.(a) Diagram of warp and weft *kasuri* thread alignment corresponding to figure 2; (b) Drafted design of *Oshima kasuri* corresponding to figure 3a.

of Japan, enabling producers in Amami Oshima to know what others were producing and to attempt more innovative designs of higher quality. The modern ideas of capitalism and productivity, however, introduced the concept of "specialization of tasks" involved in the "production line" of *kasuri*, which led the craft into later deterioration. A single master of one shop could no longer produce a finished product alone. If a master craftsperson in charge of even one step, be it designing, dyeing, or weaving, stopped functioning, the whole craft died out.

As *Oshima kasuri* of the highest quality is an almost extinguished art in Japan today, this paper seeks to document and preserve its designing and weaving methodologies before it is too late. The information presented in this article results from fieldwork, including interviews of craftsmen in their late seventies and eighties, and older. Some have unfortunately passed away during the course of this research.

Political, economic, and social changes in modern Japan influenced weavers, consumers, and people involved in the textile industry, a situation that has affected fashion. This article also records Japanese costume from the late nineteenth century into the mid-twentieth century, illustrating how people chose and bought traditional clothing and how fashion changed in response to changes among weavers, wearers, and all those involved in between. It is a record of how a traditional craft lived through modernity and is today about to become extinct. A larger consideration lies behind this story: how to measure the value of our own historical tradition. Is tradition worth preserving even when it cannot be quantified within present-day economic logic? How do we regain a lost tradition?

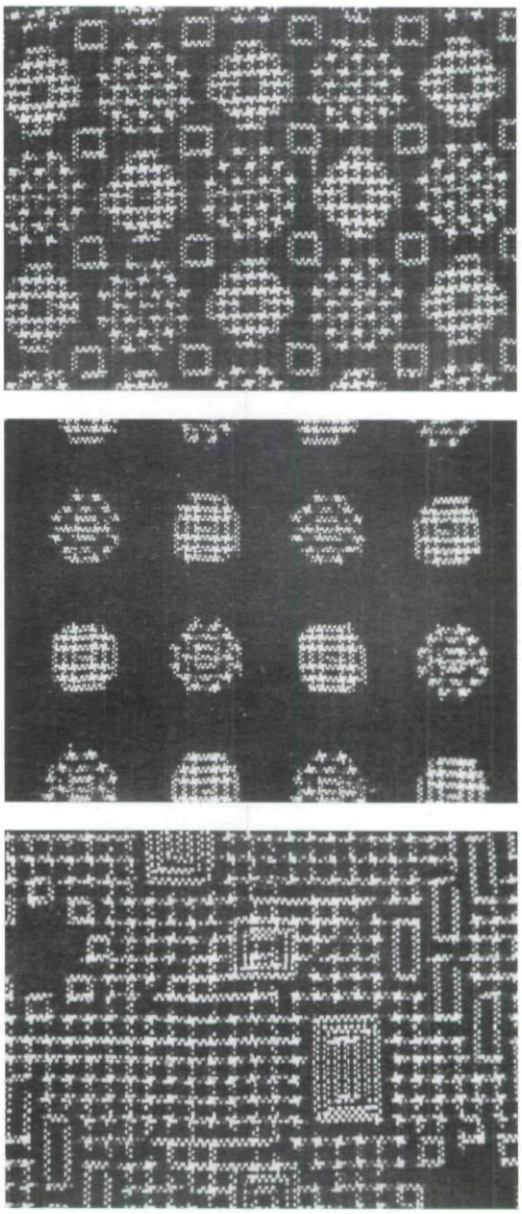


Fig. 4. Samples of *Oshima kasuri* fragments from the Taisho period (ca. 1920s). Courtesy the Research Institute for Oshima Tsumugi.

Kasuri Production on the Eve of Modernization

Weaver and wearer after the Meiji Restoration

The Meiji Restoration resulted in great political and social change unlike anything that had ever happened before in Japan. In the late 1850s, as the Tokugawa feudal government was nearing its end, negotiations were in progress to terminate Japan's ban on foreign trade. In 1868, when the Meiji government was established, measures were taken to eliminate Japan's isolationist policies. With the lifting of the ban on international trade and travel, knowledge of European textile technology such as the Jacquard mechanism, the fly shuttle, and—most important for this discussion—the use of graph paper entered Japan. Silk-reeling machines, synthetic dyes, and pattern-woven and printed fabrics also were imported. These were first brought mostly to Kyoto, the textile center of Japan.

Among the new ideas that came from the West, what influenced *kasuri* weavers and their textile designs most was the graph paper methodology that came from Lyon, France. Lyon already had a tradition for using graph paper in designing patterns for French ikat, called *chiné.* The precise planning of the designs for *kasuri* resulting from graphing the patterns contributed to making a more pictorial product.

During the Meiji period, the active transfer of capital and the development of transportation systems, such as the opening of the national railroad, resulted in more vigorous social activity among people of all classes and less rigidity in upward social mobility. Rise in the demand for clothing increased as the country became modernized and people were allowed to travel freely within the nation and to gain education or wealth at their will, unrestricted by the class system. This phenomenon fueled designers and weavers with the energy to weave better and higher quality textiles in larger quantities. Under the modern capitalist system, a factory with the necessary financial backing came to hold a position of leadership in the field. The weaving industry gradually transformed itself from a domestic regional craft, which delivered finished products from the loom directly to the wearer or to local markets, into an industry based on machine and mass production.[4]

In this new system, a factory manager investigated, planned, and managed the most productive method by which to produce nationally marketed, quality textiles that could be sold to a broad audience in large quantities. The system of delivering the final product to a wider audience in the Meiji period was quite different from that of the Edo period (1603–1867). Finished kimono produced by the factory in the Meiji period were handed over to several large-scale wholesalers, mostly in Kyoto, or in other large cities such as Tokyo, Osaka, or Nagoya, who had a nationwide clientele. Edo-period wholesalers were regionally based and smaller in scale than those of the Meiji period. In the Edo period, there were still tight restrictions on interregional commerce. Although the sudden sprouting of mass production and marketing in the Meiji period finds its seeds in active Edo commerce, in the Edo period, only the privileged few could use textiles that were made in distant areas.

The change from Edo to Meiji was dramatic, with a modern managing unit and wholesalers increasing distance between the weavers and the wearers. Different stages of *kasuri* production were divided to create specialists. Under this production system, there was a division of labor among specialists who worked under a contract with the business manager, who conducted the factory or atelier. Each division of labor increased specialization and they all held their own responsibility in contributing to producing a finished high-quality textile. This structural transformation resulted in an increase not just in productivity but also in profit, stimulating increased production of *kasuri* in different regions. One of these regions was Amami Oshima island where *Oshima kasuri* is still produced today.

Hand-Tied *Kasuri* from Late Edo to Meiji: The Concept of *Osharegi* as a Catalyst for Technical and Design Development

Even before Western technology influenced the development of *kasuri* textiles and the textile industry as a whole, gradual transformations were occurring in the last days of feudal Japan on account of changes in the tastes and needs of the population. In the late Edo period (late eighteenth to early nineteenth century), hand-tied *kasuri* textiles were being brought to urban centers from *kasuri*-producing regions located in rural areas of the country. These products were for the use of selected customers. In this period,

a prohibition on the use of luxury materials was proclaimed by the government and even very wealthy townsmen had to refrain from wearing silk. *Kasuri* made from cotton and *asa* (hemp, ramie) designed to the tastes of the urbanites was fashionable and in great demand. Japan, in late Edo, was at the doorstep of Western modernity. With the spread of education and an increase in the urban population, social mobility increased, producing many nouveau riche city dwellers who valued hand-tied *kasuri* as something more than ordinary. This phenomenon produced a special image of *kasuri* among the people as a textile used for fashionable wear.

After the downfall of the Edo government, people demanded to wear what they wished. The ban on silk was lifted. This gave birth to the concept of *osharegi*, or the informal stylish kimono, suitable to wear when going out. Hand-tied *kasuri*, which already held status as material for fashionable garments, was now produced using silk thread and was perfect for the purpose of *osharegi*.[5] As a traditional custom since the Edo period, women's formal or ceremonial kimono were made from dyed or printed silk, and the combined use of the higher-class weaving material, silk, with fashionable *kasuri* patterns was readily welcomed. *Kasuri* kimono used as *osharegi* dominated a class of garments which were never used as ceremonial clothing but were more fashionable than house wear.

In the late nineteenth and early twentieth centuries, *kasuri* patterns became smaller and smaller. The *komon* patterns, or small stencil resist-dyed repeat patterns, which were used by samurai elite for ceremonial costumes in the Edo period, became unrestricted by class in the Meiji period. *Komon* prints of previously restricted patterns started to be used for women's kimono. It was during this period that European textile imports, such as tiny roller-prints, became an impetus for Japanese printers. The printers of *komon* competed to produce the more minute and exact prints, which were preferred by their customers. Designs of small patterns became trendy. Meanwhile, the gradual diffusion of Western weaving mechanisms and designs also influenced Japanese weavers. Imported, mechanically woven, patterned weaves and the use of graph paper stimulated *kasuri* weavers to produce minutely resisted dots on their *kasuri* threads and to create many new variations of ever smaller patterns. Moreover, new dyes, materials, and weaving techniques collectively contributed to the development of the craft.

The foundation of *kasuri* in Amami Oshima island

When Amami Oshima succeeded in perfecting the *orijime*, or woven-resist *kasuri*, technique, this method was naturally employed to produce the most up-to-date small *kasuri* patterns consisting of dots and short lines. So much effort had been directed by *kasuri* weavers toward creating newer and better techniques to produce more precise, intricate, and tiny designs that the value of *kasuri* textiles soon started to be measured by the number of cross sections (the intersection of short resisted lines in both warp and weft) in the width of a kimono. This raised the competitive atmosphere among all weavers of *kasuri* to concentrate their efforts on producing even more minute thread-resists in order to heighten the worth of their cloth. In this competition, the *kasuri* from Oshima stood out as that of the highest quality.

It is not an exaggeration to say that the location and history of textile production in Amami Oshima were suited for the successful development of the *orijime* technique. Amami Oshima island, located between Okinawa and Kagoshima, south of the Japanese mainland, puts this area into the Okinawa (formerly called Ryūkyū) cultural sphere. In this region in the Edo period, both ramie and *bashōfu* (a cloth woven from the fibers of the inner bark of banana trees) were produced for domestic use. These textiles without patterns were dyed in plain colors from plant dyes readily available in the area, including *Ryūkyū-ai* (indigo from Ryūkyū, *Strobilanthes cusia* O. Kuntze). In this period, both *tsumugi* (pongee silk) and *bashōfu* were woven as annual tribute payments to the powerful fiefdom of Satsuma in southwestern Japan (present day Kagoshima Prefecture). Although surviving ex-amples of *kasuri* textiles from this period in this area are scarce, the textiles made for tribute included hand-tied double *kasuri*, similar to Okinawan *kasuri* in a simple grid variation pattern in both warp and weft. This became the precursor of *kasuri* woven in later periods using the *orijime* technique. These textiles were woven using the *izaribata*, a body-tension loom with a fixed back beam and bamboo reed.

Before the development of *Oshima kasuri*, *tsumugi* woven with *tsumugi-ito*, or silk threads hand spun from floss, started to be produced on the island of Amami Oshima as a commercial product from 1877. As production rose, the supply of *tsumugi* silk thread available on the island

could not meet demand. Thus, from 1895, degummed dupion reeled silk threads were brought in from Nagoya. In 1899 *tsumugi* producers started the development of the *orijime kasuri* technique. During this long process, managers from Amami Oshima island went to research the techniques of the weavers in Kurume, on the island of Kyushu.[6] Ateliers in Kurume had been the forerunners in *orijime*, but used cotton threads. In 1907, after eight years of experimentation, Amami weavers succeeded in establishing techniques for weaving silk *orijime kasuri*, and the reeled silk from Nagoya was employed to create the first silk *kasuri* products. In 1915, high-quality reeled silk threads came into use. Reeled silk was stronger and more uniform than spun *tsumugi* and therefore more suitable for the creation of the tiny points of *kasuri* produced through the *orijime* technique. The reputation of *tsumugi* produced on Oshima had a history and the name *Oshima tsumugi* was used interchangeably with *Oshima kasuri* even though the newly developed *orijime kasuri* technique produced a completely different product from the *tsumugi* textile that had been woven with the original hand-spun silk threads. In 1897, in the process of improvements, the loom was also changed to the *takabata*, a counter-balanced loom for hand-weaving with treadles and two shafts to produce a plain weave.

Kasuri as a household name

Ever since its origin, *Oshima tsumugi* has been a valued and expensive high-quality item demanded by the bourgeois class. "Even one kimono of *Oshima tsumugi* in the trousseau" expresses the ideal of all classes of Japanese until very recently. The ensemble called *ansanburu*, which combines a *haori* (short coat) worn over a kimono, had been the most stylish nonceremonial outfit, even for men. It was suitable for wearing as an *osharegi* when going out. The period when these *kasuri* weavers lived was a tumultuous time in Japanese history in which end-users of textile products from the craft changed dramatically in less than two decades. Sudden changes in consumers occurred between the pre- and post-World War II periods. Consumers in the pre-war period were highly knowledgeable about traditional costumes, whereas the militaristic wartime generation grew up without acquiring knowledge of their garment traditions, losing an eye for high-quality handmade textiles. This factor greatly affected the art and the end product of *kasuri* in the following decade.

It is a natural instinct for all weavers, regardless of nationality, to probe the "how" for a more effective way to produce higher quality and more beautiful finished works. In the early twentieth century, this determination and spirit of innovation among Japanese craftspeople to strive for excellence and more effective techniques were so successful that *kasuri* became a household name among all Japanese in the early twentieth century. How producers tried to meet the demands of a large population of users, how they tried to set trends in fashion, and how they tried to excel in their art can be seen through the documentation of technical developments in the *kasuri* craft.

Designing and Weaving Techniques: Development of *Orijime*, Woven-resist *Kasuri*

Kurume kasuri: the development of *orijime* in the 1880s

In writing about the development of *Oshima kasuri* and other regional *kasuri* producers, one must understand the *orijime* technique, which is an essential step in the production of *kasuri* textiles. The *orijime* technique is a method of creating resists on the thread by compression on the loom. Knowledge of this technique was gained by Oshima production managers through research in Kurume between 1899 and 1907.

A legendary story accompanies the beginnings of thread-resisted geometric patterns of cotton *Kurume kasuri*. The story is told that a straw mat, placed near a fireplace for a long time, became smoked. When the warp straws that held the weft straws on the mat were taken out, resisted unsmoked areas showed up on the straws of the mat. So the story goes, but actual experimentation on cotton threads was carried out at the end of the Edo period.

The first step in the production of *kasuri* thread is the making of *orijime*, and it is not as simple as related in the legend of the straw mat. A basic double *kasuri* design in a *Kurume kasuri* is a repeat of dots, 2 to 4 millimeters in size, on a plain background (fig. 5a–c). The basic double *kasuri* weave results in the intersection of a resisted white area on the warp thread and a resisted area on the weft thread to create one white dot pattern when woven. This simple design was

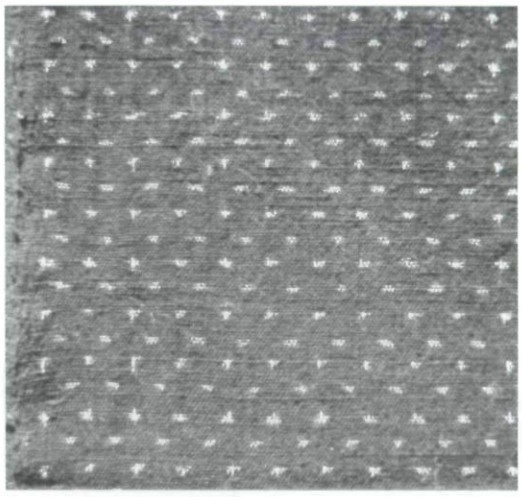
produced in large quantities using the *orijime* technique and was the most basic design of the *Kurume kasuri* which flourished around 1880. These *kasuri* textiles were sewn into casual men's cotton kimono for daily use or as women's home wear.[7]

The *orijime* process for making resists on threads in Kurume, Kyushu

The word *orijime* when written in Chinese characters is made from two verbs, 織 (*ori* meaning *oru*, to weave) and 締 (*shime*, pronounced *jime* when combined with a prefix, meaning *shimeru*, to tighten).[8] The loom used for the *orijime* process is a *takabata*, a counter-balanced loom with two shafts. The wooden structure of this loom needs to be much bigger and stronger when used to weave the *orijime* than in the usual *takabata* loom in order to withstand the beating process. In *orijime*, as understood from the definition, the cotton weft threads are "woven" on a loom with warp yarns that are closely spaced in those areas where the cotton thread is to be resisted, thus creating highly compressed sections on the weft thread, which later will resist the dye (fig. 6). The finished *orijime*, when taken off the loom, looks like a woven mat-like fabric (fig. 7) and is dipped into indigo dye. Both the warp and weft threads used in weaving *kasuri* cloth are always woven as weft in the *orijime* process.

When making the *orijime* resist for the warp threads, the woven width is any dimension that is convenient for the craftsman. The threads to be wrapped but just inserted as weft are drawn directly from the cones placed on the floor for ease of handling (fig. 6). The bunch of threads proceeds through the shed in a loop so the threads pass back and forth in both directions before the shed is changed, with the cones remaining on the floor. When dyed, the section in the mat-like fabric between the spaced groups of warp absorbs the dye. All the warp yarns (threads used as resists) are removed after dyeing; the result is warp threads with white undyed spots that later create the *kasuri* design during the weaving process. Dyed warp threads for the *kasuri* and warp threads for the plain ground color are alternately arranged on the back beam to prepare for the weaving of the dot design.

When making the *orijime* for the final weft threads of the *kasuri*, the width of the *orijime* is that of the width of the kimono (fig. 8). A bunch of cotton threads is inserted through the warp



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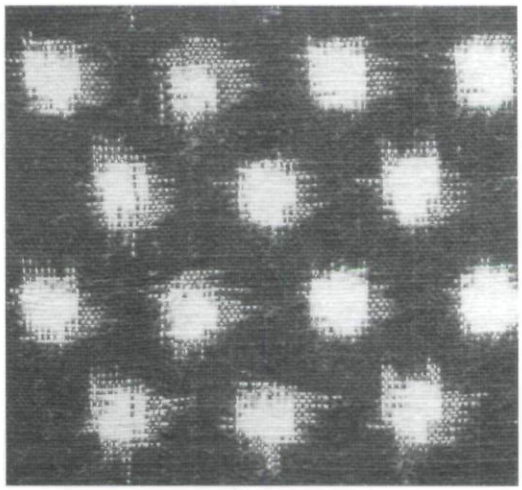

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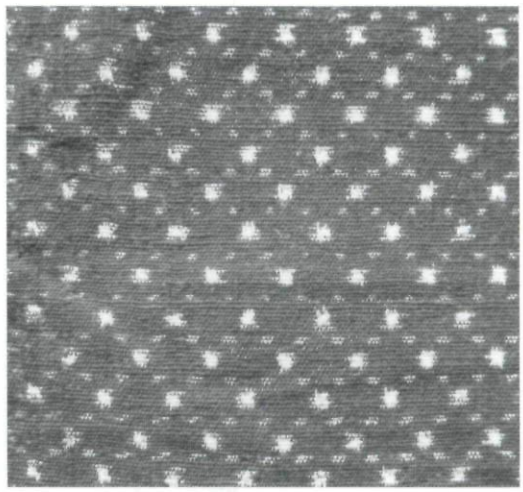


c

Fig. 5. Samples of dot design *Kurume kasuri* fragments from the Late Meiji to Taisho periods (ca. 1880–1930).

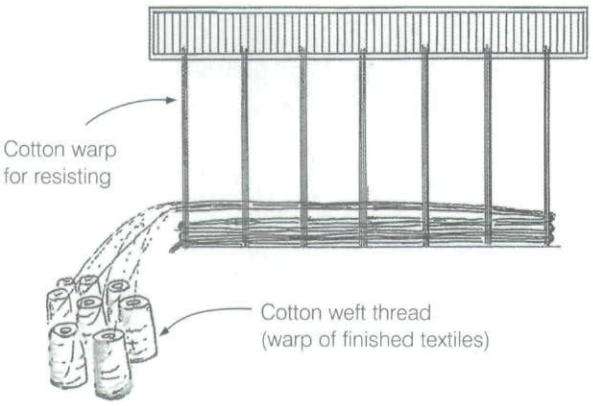


Fig. 6. Diagram of the *orijime* process for *kasuri* warp found in Kurume. Spaced warp yarns press the cotton wefts (used as warp in finished textiles). Wefts on cones are placed on the floor.

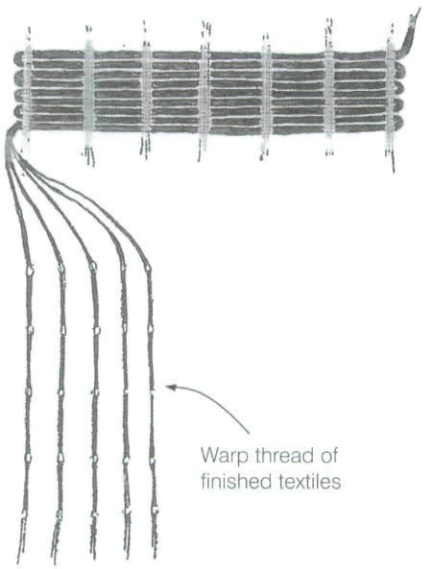


Fig. 7. Diagram of *orijime*, which looks like a mat when finished. After the warp yarns are removed from the dyed mat-like fabric, resisted white spots are revealed on the threads.

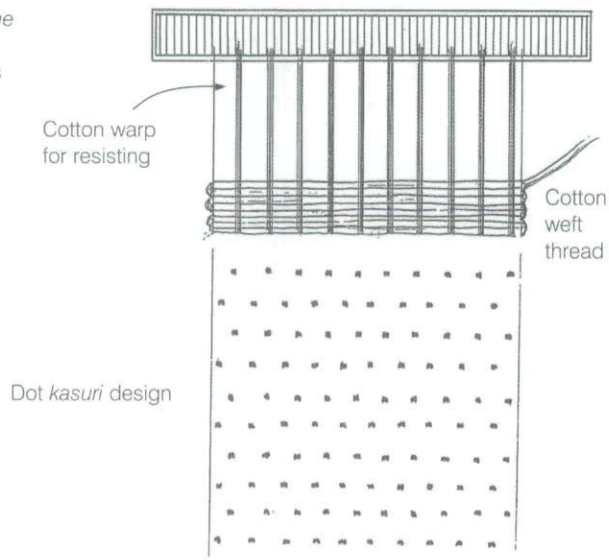


Fig. 8. Diagram of *orijime* process of *kasuri* weft. A bunch of weft threads on a shuttle is woven into a mat-like fabric.

with a shuttle as in an ordinary weaving process. The *orijime* is dyed and the warp yarns used as resists are taken out, resulting in dyed threads with undyed white areas. The alternating dot pattern of the double *kasuri* in the final textile shows that the repeated design is woven at different distances from both selvedges (fig. 5a–c). To make this possible, the *kasuri* weft threads are woven using two shuttles inserted from opposite sides to make it easier to adjust the meeting sections of the resists on the warp threads.

The development of *Oshima kasuri*, ca. 1907

A silk *kasuri* woven using the *orijime* technique with a more complex pattern was created on Amami Oshima island around 1907. The *orijime* technique from Kurume, used now on silk, was improved with great efforts of the Oshima designers. Improvements added to the original techniques in the weaving process included rolling the ground-color warps on the back beam of the loom and putting *kasuri* warps separately on a holder. Such differences came about on account of the traditional weaving methodologies in Okinawa.

Another difference in technique that greatly affected later developments of *Oshima kasuri* was in the use of patterned and unpatterned threads. Among the samples of late nineteenth-century hand-tied silk *Oshima kasuri*, we find two resisted *kasuri* threads and several ground-colored threads being alternately woven (fig. 9). Such a strict weaving alternation did not exist in *Kurume kasuri*, and it was this pattern of alternation that developed into the basic 2K-2G pattern (2 *kasuri* threads alternating with 2 ground threads) and created the very sophisticated designs of *Oshima kasuri* in later periods.

Yet another development from *Kurume kasuri* resulted from the use of silk. In the *orijime* process of the *Kurume kasuri*, cotton weft threads were drawn directly from the cones placed on the floor. On the other hand, in the beginning stages of the *orijime* process for the *kasuri* in Oshima, usually twelve to sixteen fine silk threads (this number might increase to twenty) were bunched together for the weft by using glue made from seaweed, called *tsunomata* or Irish moss (*Chondrus ocellatus Holmes*).[9] The bonded silk threads were then wound around a flat wooden shuttle that was passed through the shed. All of these elements contributed to the production of a high-quality finished product on Amami Oshima island.

Designing complex *Oshima kasuri* patterns, early twentieth century

In the early twentieth century, although designs became more sophisticated and the trend was toward more intricate ones, graph paper was not yet used in Oshima for designing *kasuri* patterns. Designs were made by *orijime* craftsman by drawing in a notebook using symbols (fig. 10). Accompanying texts explain the design and drafted symbols consisting of points and short line combinations continued to be used. The often-used cycad leaf pattern, composed by piling short lines woven in an L-shape, was drafted and designed on plain paper. A combination of lozenges composed of these L shapes became the base pattern for the later development of the *tatsugo* pattern (fig. 11). The *tatsugo* motif later became a traditional pattern for *orijime kasuri* as well as for *itajime kasuri*, or board-pressed *kasuri*.

In the Taisho period (1912–26), various designs were developed using single *kasuri* threads in diverse alternations for both warps and wefts, in addition to the traditional design of 2K-2G (figs. 12a, 13a–c). For example, two *kasuri* threads alternated with two ground threads, followed by a single *kasuri* thread alternating with one ground thread (figs. 12b, 14a–c). For the purpose of discussion, we will call this variation the 2K-2G-1K-1G pattern. This combination of *kasuri* design patterning is called *warikomi*, which literally means "breaking into the line." By the creation of just this one variation, craftsmen were now able to make very complicated designs. Color and weave effects like the log-cabin pattern were produced, resulting from

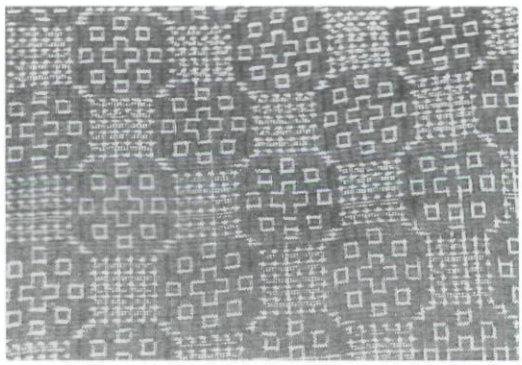


Fig. 9. Hand-tied *Oshima kasuri* in early Meiji (ca. 1870s), exhibited at the Museum of Oshima Kasuri in Nase, Amami Oshima.

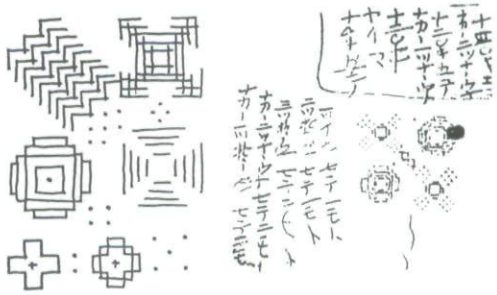


Fig. 10. *Orijime* design drawn by a craftsman using symbols before graph paper was used.

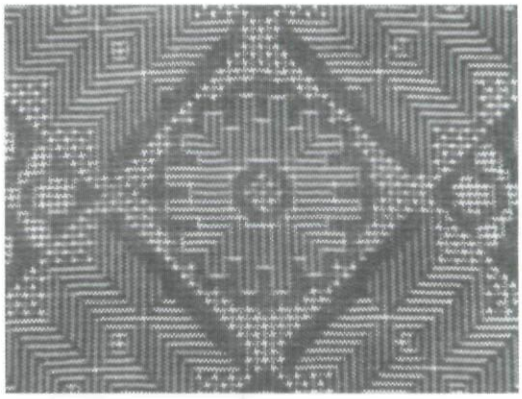
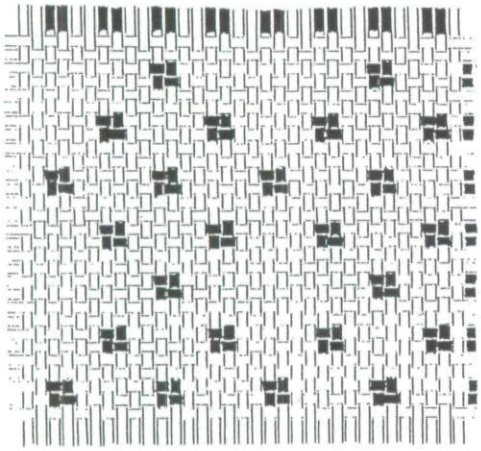
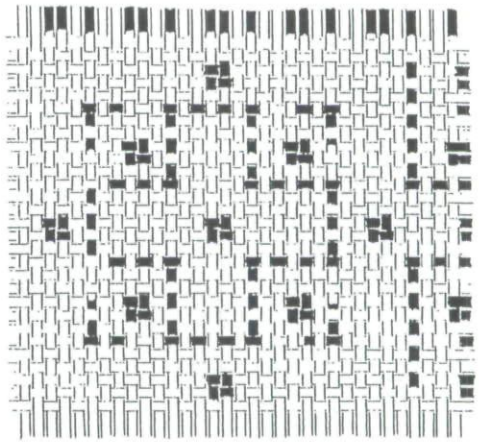


Fig. 11. Detail of *tatsugo* design; lozenge variation composed of L shapes.



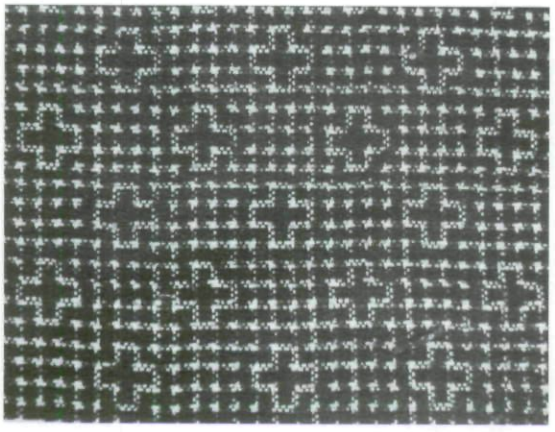
a



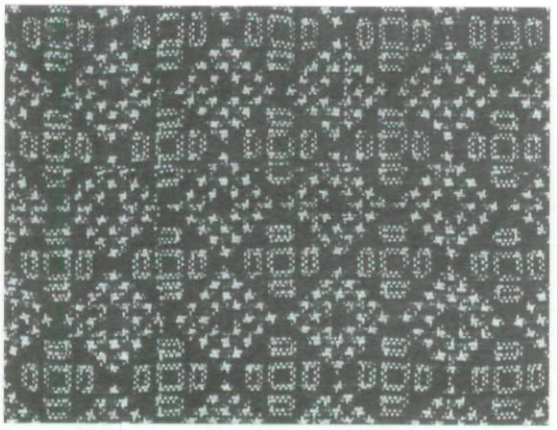
b

Fig. 12. (a) Diagram of warp and weft *kasuri* thread alignment in a 2K-2G *kasuri* pattern combination; (b) diagram of warp and weft *kasuri* thread alignment in a 2K-2G-1K-1G *kasuri* pattern combination. With the addition of just one extra *kasuri* thread to the 2K-2G combination, the design of the *kasuri* textile becomes a 2K-2G-1K-1G thread combination.

Fig. 13. Samples of the 2K-2G *kasuri* design for *Oshima kasuri*. Courtesy the Research Institute for Oshima Tsumugi in Amami Oshima.



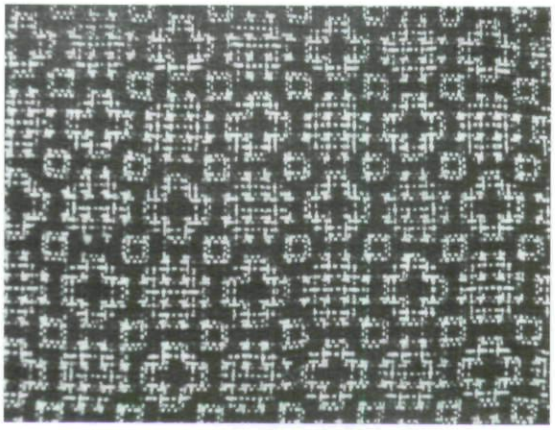
a



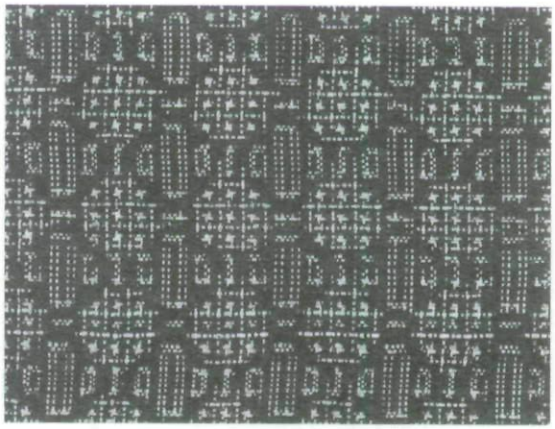
b

c

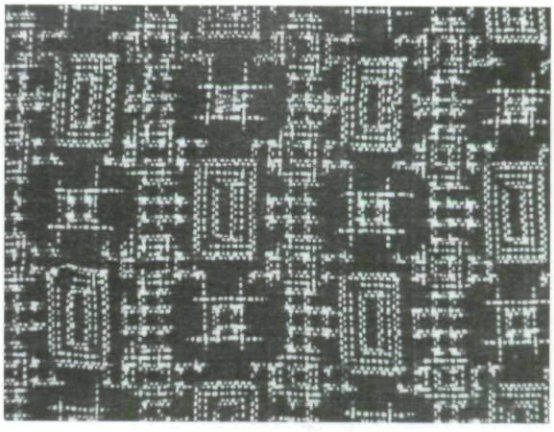
Fig. 14. Samples of the 2K-2G-1K-1G *kasuri* design for *Oshima kasuri*. Addition of just a single *kasuri* thread to a 2K-2G design (fig. 13) placed alongside shows how this single addition adds variation to the design.



a



b



c

variations in combination of ground color and resisted white warp and weft threads. Various shapes as well as different colors could be produced by modifying the detailed pattern combinations of dots and lines in the *kasuri* against the ground color.

As graph paper was not yet in use, the outcome of the new designs depended heavily upon the abilities and memory of the weaver. The weaver always used more than two shuttles, and at times up to twelve shuttles, to weave the weft. Aged weavers, in their nineties today, still proudly describe how difficult it was to remember the order of the eight to twelve shuttles they juggled to manage the 2K-2G-1K-1G pattern. The remaining fragments from this period show surprisingly complicated and diversified patterns that could be woven without the use of graph paper (fig. 14a–c).

The designs from the Taisho period were intricate, but they do not compare in sophistication with surviving fragments produced from the second year of Showa up to World War II (1927–41). It was in this period that the use of graph paper flourished in Amami Oshima. The Showa designs are pictorial and use patterns consisting of the 2K-2G-1K-1G thread order (fig. 15). Without new knowledge of the usage of graph paper imported from France, it would have been impossible to design and weave such complicated *kasuri* patterns, and the further development of *kasuri* might have halted.

When the use of graph paper began, rules and symbols were agreed upon by designers and weavers such that marks landing on the graph lines symbolized two *kasuri* threads and those landing in areas between the lines symbolized a single *kasuri*. Three variations of 2K-2G-1K-1G *kasuri* patterns were effectively combined to compose the design in the finished textile shown in figure 2 (and related figs. 3a–b). Endless variations in the combination of *kasuri* and ground colors became easily possible using the graph paper as shown in figure 16. Further, after World War II, various combinations of *kasuri* threads and ground color threads, such as 2K-4G, 2K-3G, 1K-1G patterns were created to accommodate emerging tastes.

Changing the threading of cotton warps in *orijime*

Unlike the consistent dot design seen in *Kurume kasuri*, the complicated patterns of the silk *Oshima kasuri* demanded the exchange of

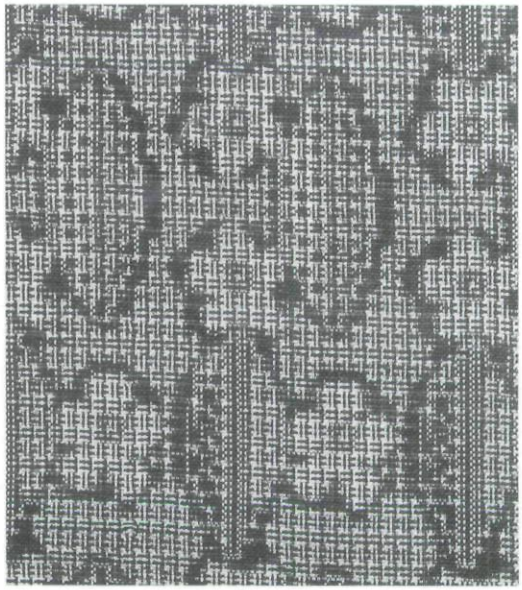


Fig. 15. Early Showa fragment with a pictorial pattern consisting of the 2K-2G-1K-1G *kasuri* combination.

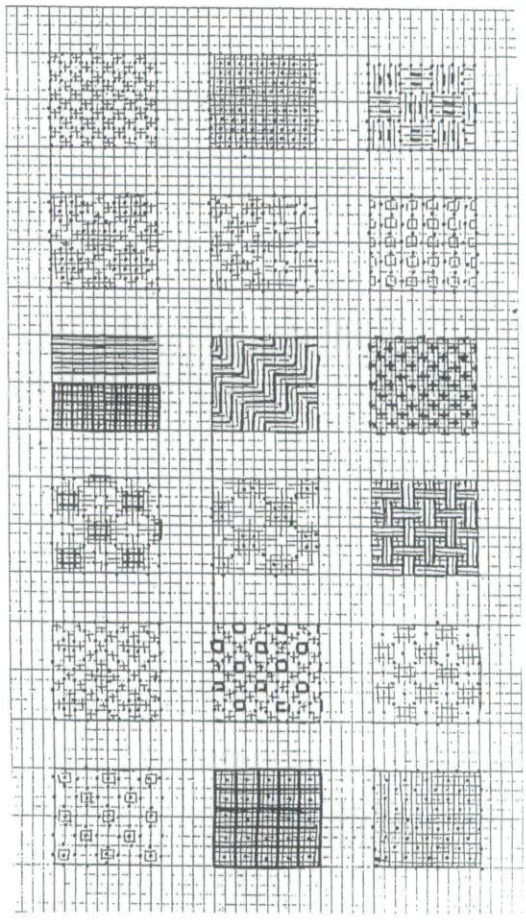


Fig. 16. Variation of a 2K-2G-1K-1G pattern drafted on the graph paper. These designs were drawn by a drafter, the late Mr. Genyoshi Ohyama.

warp threading in almost every row of the textile. In weaving the *orijime*, cotton yarns were employed as warps for plain weave forming compressed resists on the silk threads used for the final weave. A bamboo reed was used to thread the cotton warp yarns that created resists for the most basic dot in the final textile. It became an agreed rule that every marked point on the cross section of a graph paper denoted the most basic dot in a design for a finished double *kasuri* (fig. 17) and that in the preparation process of creating the *orijime* for the *kasuri* threads, eight cotton warp yarns would be put through a dent of a reed at every third dent. To facilitate this process, the bamboo reeds were marked with ink at the points where the cotton warp yarns were to be inserted (fig. 18). Every three dents marked with ink denoted the section between the lines of the graph paper.

In order to realize the complicated design of the sophisticated *Oshima kasuri* (fig. 19), the craftsman making resisted threads cut the warp and changed the cotton warp threading each time the design changed (fig. 20), following the marks on the graph paper denoting the positions of the resist. When the craftsman changes the cotton yarn combination on the loom, he adds warp yarns where needed and takes them out where not needed in the reed. Each time the threading in the reed changes, the ends of the cotton warp yarns are knotted and laced with a rope which is attached to nails on the front beam of the loom (fig. 21). This speeds up the rethreading process of the cotton warp yarns and facilitates the adjustment of the tension of the cotton warp. Unused cotton warps in the process were hung on hooks attached to the wall above the loom when not in use (figs. 22, 23). The work of the *orijime* craftsman is efficiently planned; even so, he is only able to repeat the rethreading process an average of ten times a day.

Fig. 17. Diagram of cotton warp threading and warp and weft thread alignment resulting from a 2K-2G design on graph paper.

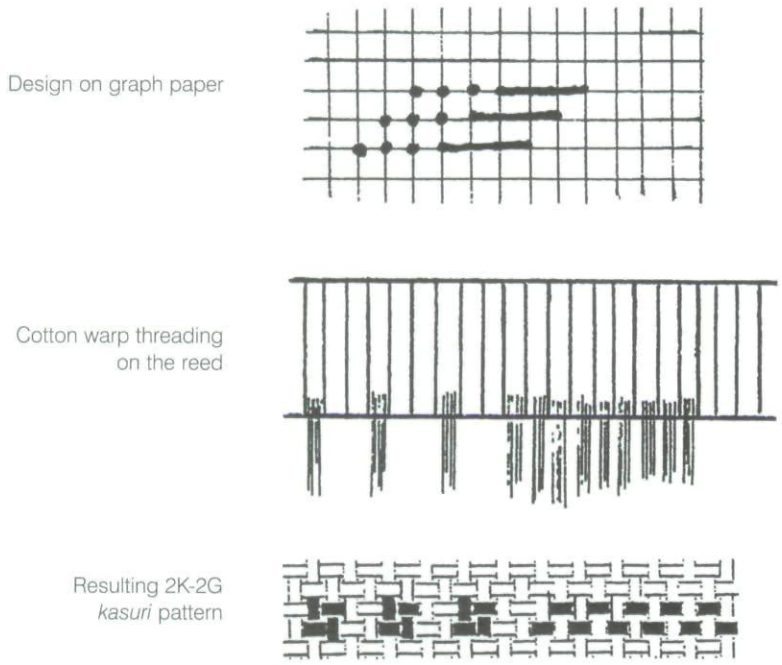
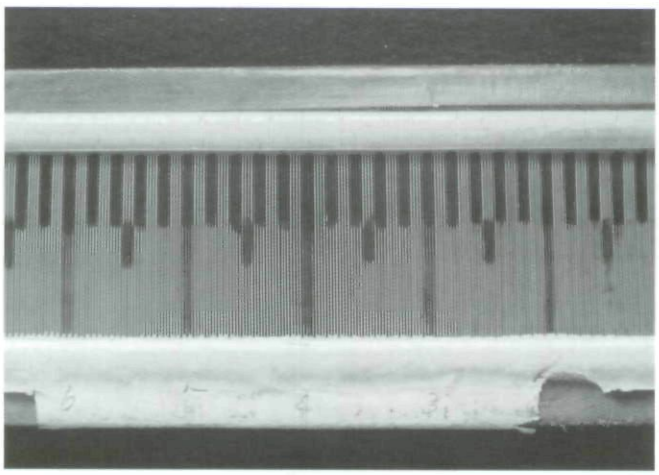


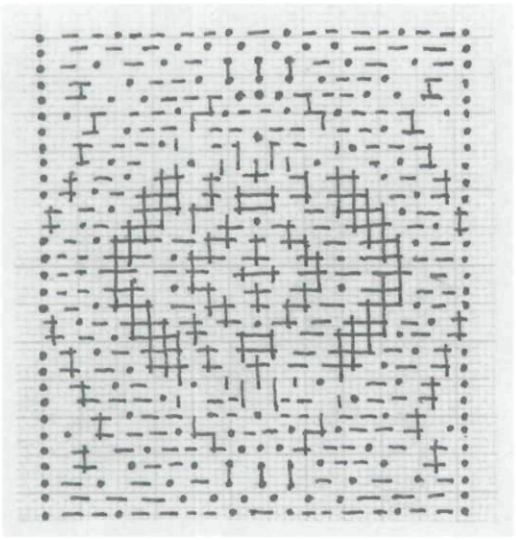
Fig. 18. Marked bamboo reed.



The *orijime* process for warp threads in *Oshima kasuri*

In all *orijime* processes, the thread used in the final weave, whether warp or weft, is woven in the weft direction on the loom. In the designing stages, the repeated warp patterns of the *Oshima kasuri* are planned within the width of the loom to make the weft dimension correspond to a repeated design, or several smaller repeated designs, of the warp. If the repeats are small in size, the width would be decided by the craftsman for his convenience. Threads with resisted patterns for several kimono with the same design are made in one *orijime* process. Individual pieces of cloth in the shape of small mat-like fabrics are woven for each *kasuri* warp that is made following marks drafted on each line of graph paper. In this discussion, we will call this single-patterned warp, column A (fig. 19). After the *kasuri* warp from column A is woven into mat-like form (fig. 20), the craftsman secures the finished mat-like fabric by weaving about one centimeter more of textile using cotton yarns. The threading of *orijime* cotton warp yarns is then changed to start weaving the *orijime* for the design in column B drafted on the graph paper.

Fig. 19. Drafted design of *Oshima kasuri*.



BAB

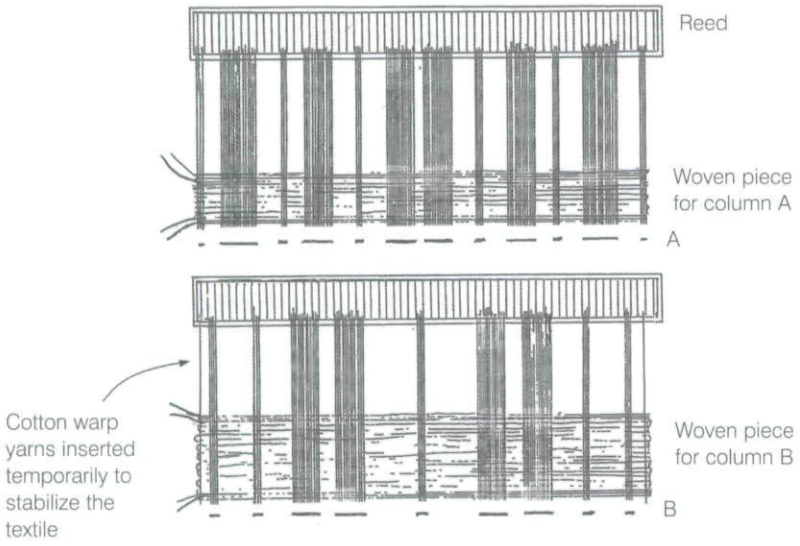


Fig. 20. Diagram of threading of cotton warp yarns for resisting in the *orijime* process of *kasuri* warp. Cotton warp threading for warp A and warp B corresponding to the draft in figure 19.

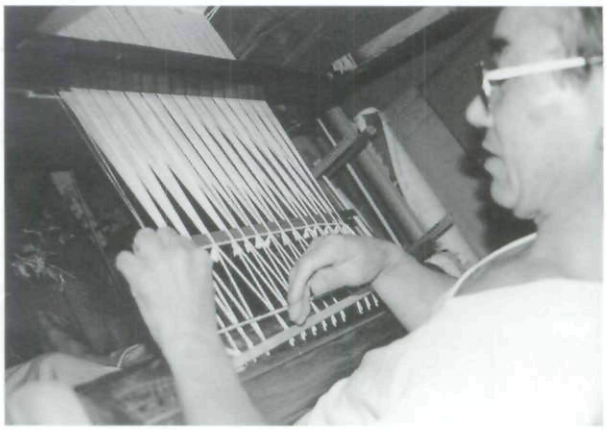


Fig. 21. The ends of warp yarns are knotted and laced.

Fig. 22. Mr. Fujio Takeyama, *orijime* craftsman, beats the shed on the shuttle. Unused cotton warp yarns are hanging diagonally from a hook.

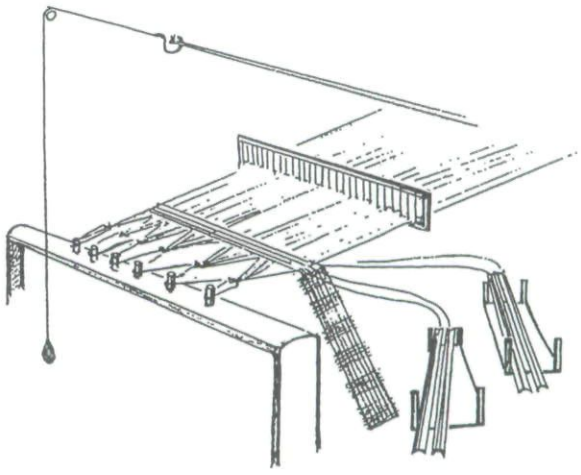


Fig. 23. Diagram of the *orijime* process of 2K-2G *kasuri* weft. Shuttles return to one side of the loom. Unused cotton warp yarns are hanging on a hook.

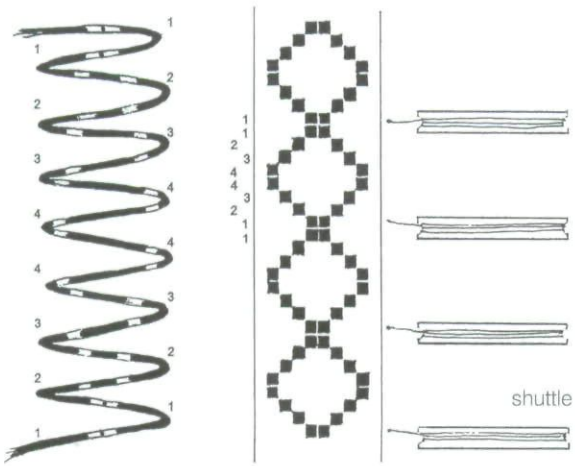


Fig. 24. (a) Bunch of 12 to 16 weft *kasuri* threads with continuous resisted patterns in a repeat after the dyeing process. (b) Design of the corresponding repeats to be resisted using a shuttle wound with a bunch of silk threads, the length of a single repeat. Many shuttles are used to produce repeated patterns on a kimono, and the repeats are produced in multiples for several kimono for reasons of efficiency.

a One bunch of weft threads.

b

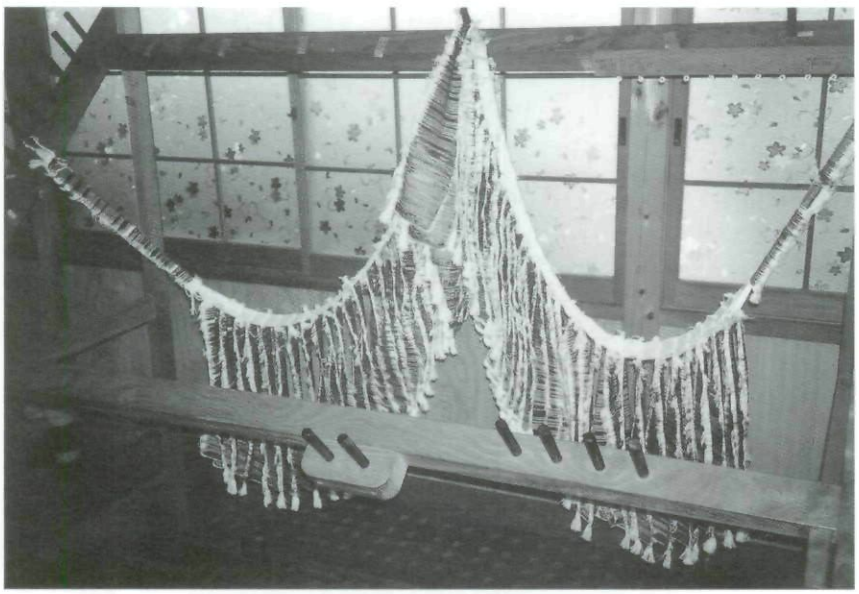


Fig. 25. Connected pieces of finished *orijime* for 2K-2G weft *kasuri*.

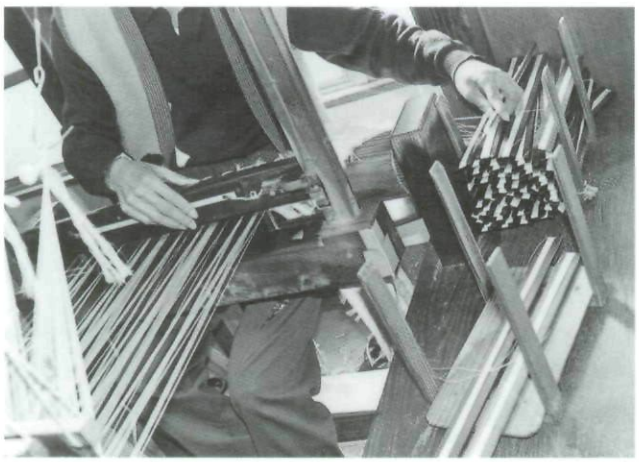


Fig. 26.
Box of shuttles.

Take, for example, the drafted pattern shown in figure 19. Here, the design is symmetrical, and there are two columns with the same designs marked as B so the craftsman would make double the amount of warp *kasuri* threads for B compared to column A, which is the only column with this particular design (fig. 20). The most important difference between the designs of column A and B for the *orijime* craftsmen is seen at the selvedge. When the design ends with a "point" at the selvedge, as seen in A, the resisted pattern is created by the usual *orijime* warp yarns consisting of a group of eight cotton yarns. But when the design carries the ground color to the ends, as seen in column B, several warp yarns that will be taken out before dyeing are temporarily inserted and woven with the final silk threads to stabilize the textile. These warp yarns are taken off before the dyeing process begins. By employing this method, resist marks do not appear in the finished textile.

After the warp combinations for the design are ready, bunches of silk thread are passed through the shed, but in the process, the weaver stops the shuttle in the shed and uses it to beat the previously woven row of wefts with all his might (fig. 22). After passing the shuttle through the shed, the newly passed weft is struck again, this time with the reed, in order to further tighten the clamp of the resist.

The *orijime* process for weft threads in *Oshima kasuri*: the 2K-2G pattern

Unlike the resists for the warp threads, in which separate columns of designs are woven as resist individually, the resists for each horizontal shed in the finished textile are made on one continuous strand of a single thread, which is used for the weft (fig. 24). A bunch of threads in each shed to create a repeated design, or those with several smaller repeated designs in the vertical direction, is woven as resist concurrently. The finished woven resist of the weft threads looks like a curtain made of narrow bands hanging from one end connected to each other with a horizontal band (fig. 25) because of this 2K-2G *kasuri* technique.

In producing the weft *kasuri* threads, many shuttles are used to increase productivity, both for multiple repeats on one kimono and for multiple kimono (fig. 24).[10] Each shuttle goes and always returns successively to the same side because, as mentioned earlier, traditional *Oshima kasuri* had been composed of two *kasuri* threads

woven together as one. To make two identical *kasuri* wefts continuously, the craftsman runs each flat shuttle through the sheds and returns to the position in which the shuttle started. As the shuttles return to the selvedge, they are stacked consecutively in a box formed from a base and just four poles in each of the corners (fig. 26). When all shuttles have returned to one selvedge and into this box, they are turned upside down into another identical box (fig. 23) so that the shuttle used first returns to the top of the pile. Since the shuttle always returns to the same side, small resisted points are in alignment on one edge of the selvedge in the finished textile. This is one of the defining characteristics that distinguishes *Oshima kasuri* from *itajime kasuri*. After all the shuttles have run through the shed and returned to the original position, the threading of the cotton *orijime* warp yarns is changed for a different design, such as those seen in row two of the graph paper (figs. 27 and 28). The *orijime* process for the weft threads used to make several repeats in the design is continued on a single strand of silk thread in consecutive order along the draft of the graph paper until all of the needed *kasuri* resists are woven.

2K-2G-1K-1G pattern of weft threads in the early Showa period, 1926–41

By using graph paper, the drafting became more precise in indicating the variation of resists on a *kasuri* thread (fig. 16). Although precision was brought about by the use of graph paper, the process of producing these intricate patterns on weft threads through the *orijime* technique became more labor intensive. New methods in weaving the *orijime* were developed for more sophisticated designs. For example, instead of running the shuttle thread back and forth on the loom as in the 2K-2G design combination, all the shuttles were passed through in a single direction, as shown in figure 29, in the more intricate 2K-2G-1K-1G designs. The shuttle passed from left to right to be stacked in the box on the selvedge on the right side. After all shuttles on the left were in the box on the right side, then shuttles were again passed one by one from the right to the left side. This process created two connected sets of *orijime* with identical resists (marked as A in figure 30). When the design of the *kasuri* changed in the draft, the cotton warp yarns were rethreaded for the next single *kasuri* design (marked as B in figure 30). The symbol for single *kasuri* designs was drafted between the lines on the graph paper. Again, when all shuttles finished passing through the shed for this design, the cotton warp yarns were rethreaded for the next resist. In the end, this process produced a long strand of a sashlike cloth (fig. 31).

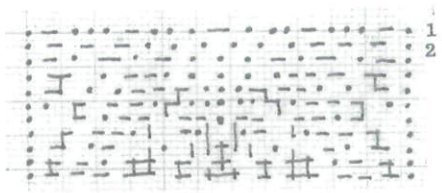


Fig. 27. Drafted design for *Oshima kasuri*.

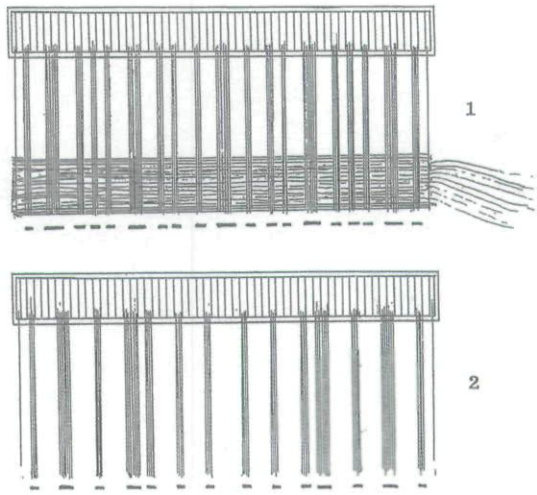


Fig. 28. Diagram of the threading of cotton warp yarns for resist in the *orijime* process of 2K-2G weft *kasuri*. When the *orijime* process is finished for row 1 of the corresponding design (fig. 27), the cotton warp yarns are rethreaded and changed to correspond to row 2 on the draft.

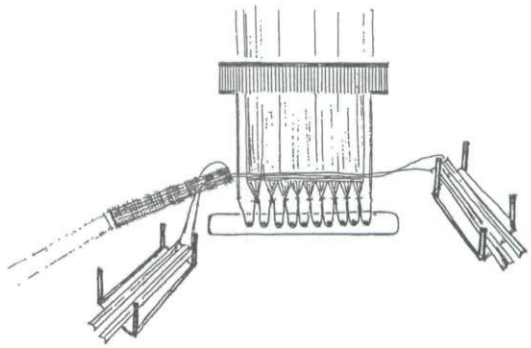


Fig. 29. Diagram of the *orijime* process of 2K-2G-1K-1G weft *kasuri*. All shuttles pass in a single direction during a single run. Boxes are placed on both sides to efficiently hold the shuttles in order through each run.

Dyeing and preparing *kasuri* threads

The color of traditional *Oshima tsumugi* is usually a natural dark brown.[11] The color results from a combination of the tannic acid of the *Sharinbai*, a kind of rose (yeddo hawthorn: *Rhaphiolepis umbellate* Makino), and mud from the local fields that contains an iron mordant. The trunk and bark of the *Sharinbai* are chopped and boiled down to extract a brown liquid containing

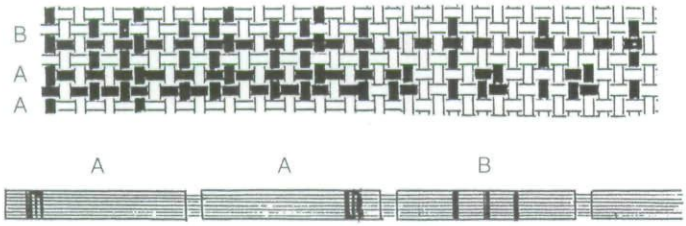


Fig. 30. Diagram of the 2K-2G-1K-1G *kasuri* pattern. The continuous *orijime* of the weft *kasuri* looks like a continuous connected band when finished.

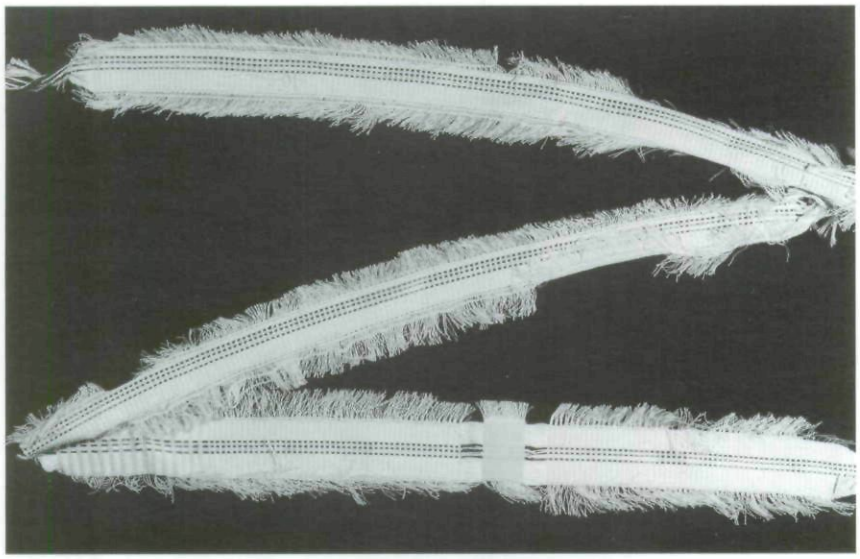


Fig. 31. Finished *orijime* piece for 2K-2G-1K-1G weft *kasuri*.

Fig. 32. When needed, synthetic dye is applied on sections of a finished *orijime* matlike fabric where cotton warp yarns have been removed.

natural tannic acid that is both a dye and a mordant. The mud from the field in Amami Oshima has a high iron content that also darkens the color. The *orijime* cloth (or skeins for the ground weave) is dipped and crumpled in the dye pot. After every third dipping, the cloth is treated in a limewater solution of 0.5 to 0.7 percent consistency. After the dyeing process has been repeated approximately twenty times, the *orijime* is dipped into the mud mordant. This process is repeated a few times. The combination of the plant dye and the iron mordant produces a deep color with the sheen and softness that is characteristic of the high-quality reeled silk found on *Oshima kasuri*, a sheen and softness that could not be imitated by other *kasuri*-producing regions. This brown color is the foremost apparent characteristic of *Oshima kasuri*, which gives it the nickname *Doro Oshima*, literally meaning "mud Oshima," in appreciation of its special color.

In contrast to brown *Doro Oshima*, *Ai Oshima*, or indigo-dyed *Oshima*, which was produced from 1933, was identified by its indigo color. The indigo dye used in Oshima is called *tade-ai* (*Polygonum tinctorium* Lour), brought into the island from other areas, mainly from Tokushima of Shikoku. *Oshima kasuri* produced in Kagoshima City by weavers who moved to the city from the island has often been dyed in indigo.[12]

When the design requires colors other than the brown or indigo, selected cotton warp yarns in the woven mat-like fabric made through the *orijime* process are taken out after being dyed, and synthetic dye mixed with starch is rubbed into the areas exposed. Synthetic dyes used to color parts of the design were first employed in 1930. Syringes or sharpened bamboo sticks are used to apply dye from both sides of the mat-like fabric (fig. 32). Taking out the cotton warp yarns from the mat-like *orijime* cloth is also an important task of the craftsman whether multiple colors are added or whether resists are left as is. Another delicate process before the actual weaving is in adjusting the *kasuri* threads to fit the pattern seen on the design of the graph paper. The total number of warp threads in most cases amounts to anywhere from 1040 to 1240 strands in a single width of kimono (approximately 37 cm).

Innovative Techniques for Designing and Weaving *Kasuri* for the Popular Market: *Itajime*, Board-pressed *Kasuri*, and *Hogushi*, *Kasuri*-style Printed Warps

Oshima kasuri patterns transferred to *itajime*, early 1920s

Because of its high quality and extreme labor intensity *Oshima kasuri* was highly valued and expensive. It was soon imitated in other places of *kasuri* production that used *itajime*, a technique employed to make resists on the thread by clamping the threads between boards carved with resist patterns. This is a more mechanized method of producing thread resists, which lowered the cost of *kasuri* textiles. In the late Taisho to Showa period, more recurring identical designs started to appear in different production areas. Popular patterns on finished textiles were being recorded and redrafted on graph paper to be transmitted to various manufacturers of *itajime kasuri*. The graph paper technique was now being used to draft new designs as well as to copy the design from the finished textiles of *Oshima kasuri* (fig. 33). The use of graph paper (for designing or for copying, or a combination of the two) differed according to the area.

There were many production centers for *itajime*, or board-pressed *kasuri*, in Japan from the late Meiji to the middle of the Showa period. These sites were originally kimono-producing regions, such as Isezaki, which produced *tsumugi* in plain, striped, and bold hand-tied *kasuri* patterning, and Murayama, which produced *tsumugi* similar to that of Isezaki with the addition of indigo-dyed cotton *kasuri* with bold white resisted patterns. The interesting aspect regarding the imitation of *kasuri* is that it led not just to the simplification of the techniques but to a greater sophistication of the designs. New ways of producing more intricate designs within the limitations of a plain weave were thought out and practiced. The use of a fly shuttle, from 1911 on, to weave *itajime kasuri* also contributed to lowering the cost of production for *kasuri* textiles.

Carving the *itajime* boards

The newly invented board-pressed technique greatly affected technology transfer of *kasuri*. This technique was derived from an old style of Japanese dyed cloth, also called *itajime*, clamp-board dyeing. The older *itajime* used indigo and *beni*, or safflower, often employed in dyeing the red undergarments of kimono. The new *itajime kasuri* technique was also derived from the concept of *kobajōgi*. *Kobajōgi* are very thin boards (later cardboard sheets were also used) that are stacked up and marked with the pattern drawn on the edge of the stack. These stacked boards were used as a programmed guide to denote sections of weft threads to be resisted. Each sheet of wood corresponded to one row of weft thread design. This idea was recorded in the grooves on the board of the *itajime*. The *itajime* technique was already practiced for *kasuri*-making in production regions in the Yamato area, near Nara, in the late Edo period, and Isezaki weavers of *kasuri* gained the technique from Yamato around 1890.[13]

Clamp boards for *itajime* were made by carving grooves into wooden boards, which corresponded to the ground color planned on the textile. Grooves are carved into the boards using a special implement (fig. 34). The raised

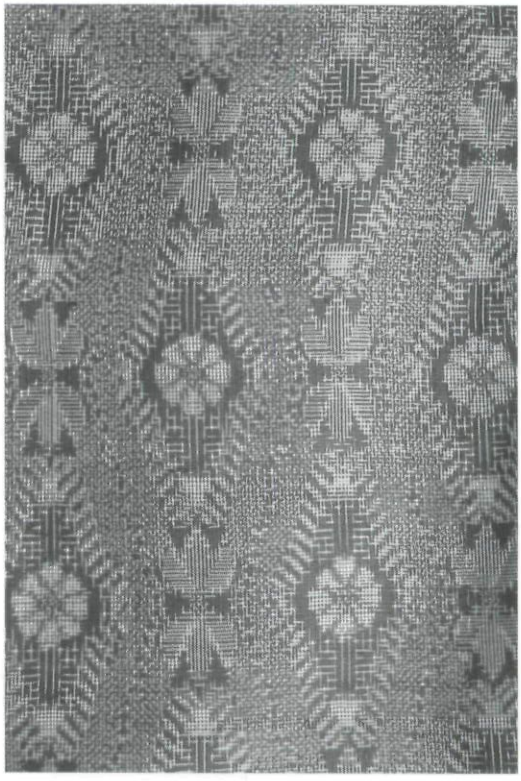
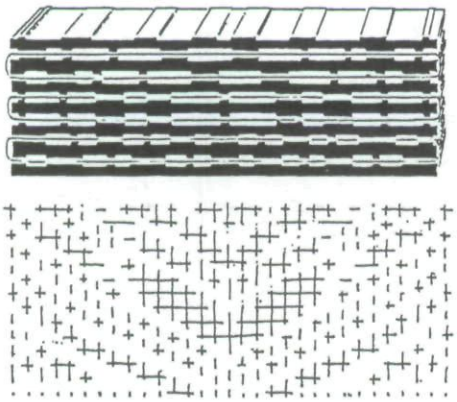


Fig. 33. *Itajime kasuri*, made in Isezaki in the Taisho period, shows a variation of a *tatsugo* pattern found in *Oshima kasuri* (see fig. 11).

Fig. 34. *Itajime kasuri* craftsman, using a grooving plane to carve the boards.

Fig. 35. *Itajime* process. Winding warp threads continuously on each board and piling them up. The patterns below correspond to the grooves of the boards.



plateau of the lines between those grooves can be as thin as one millimeter, which is the width of a point of the double *kasuri*, and corresponds to a point or a line on a graph paper. The *itajime* boards are made of wood from a tree called *Mizume* or *Azusa* (*Betul grossa*), a kind of birch tree, which grows 1200 to 1600 meters above sea level. This wood expands when it is wet with hot water.

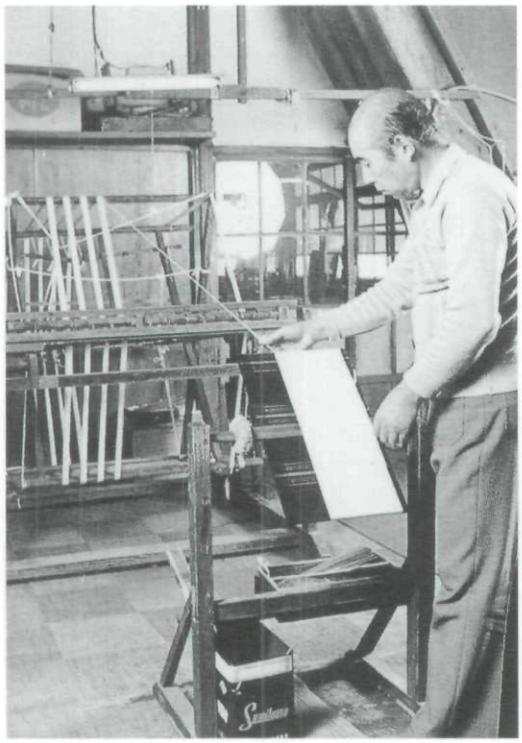
After the boards have been carved, threads are tautly and tightly secured on their surfaces. A glue solution is brushed on the boards so the threads do not slide off. Threads of warp *kasuri* and weft *kasuri* are differently laid onto the boards. On average, a set of 150 boards was used in making the *kasuri* design for one kimono. For a pattern with a long repeat, as many as 270 boards were used, and the cost of making a set of boards was extremely high. Once the boards were made, however, they could be reused over and over again.

Making resists for warp threads using *itajime*

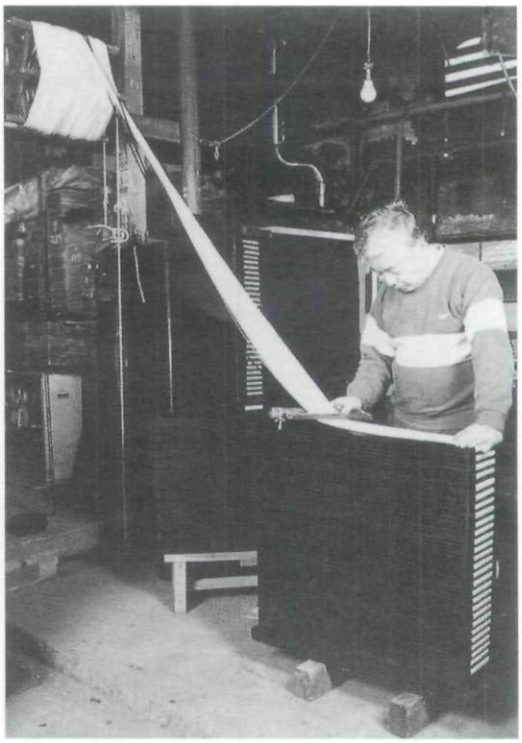
Repeat patterns for the warp *kasuri* drafted on the graph paper are transferred and carved on both sides of the clamp board. A bunch of threads is carefully lined up and wound around this board (fig. 35). The board is attached to a motor and is rotated to wind the threads evenly and tautly around it (fig. 36a). Separate boards are carved as a pair with the same carved patterns on facing sides of the clamp board. These multiple sets of paired boards come in stacked fashion when finally being assembled to be tightened between large clamps. The clamped boards are later immersed in the dye. The thread wound on the sides of the board always receives the dye so a *kasuri* portion of the design cannot be placed on the sides. Therefore, when drafting the *kasuri* patterns, the carver of the boards carefully plans where the starting point of the repeated pattern should be placed on each line of the graph paper to accommodate the design.

Making resists for weft threads using *itajime*

Repeat patterns for the weft *kasuri* are transferred from the graph paper onto the wooden boards just as in the making of *itajime* for warp threads. Identically grooved surfaces of facing boards sandwich the weft threads. Boards are placed on the horizontal and threads are laid flat, folding around the boards in a zigzag manner



a



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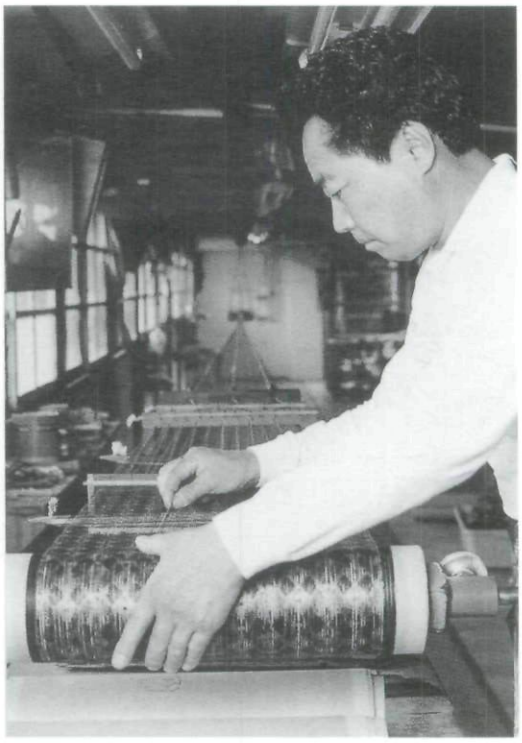


d

Fig. 36. Process of *itajime kasuri*. Courtesy Museum of Cooperative Association of Murayama Weavers. (a) Winding the warp threads on a board; (b) folding the weft threads; (c) pouring the dye on a set of boards; (d) preparing the warps on the beam.

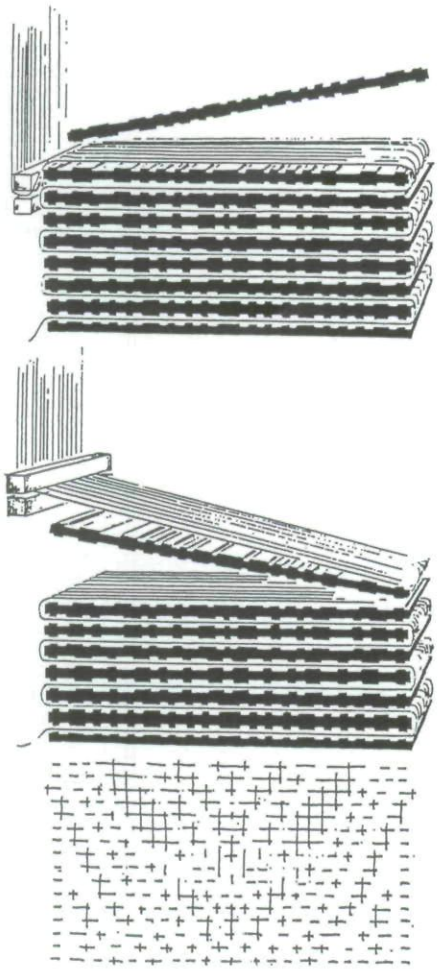


Fig. 37. *Itajime* process. Folding weft threads around the board.

Fig. 38. Rubbing in synthetic dye on the resisted white parts of a bunch of threads. This process is carried out only if the design requires other colors.

around the piled boards (figs. 36b, 37). When these threads are folded around the board, they pass between two wood blocks placed one on top of the other in order to hold the threads in their designated positions.

The *itajime* dyeing process

Kasuri threads for both warps and wefts, tightly clamped between the grooved boards, are hung in midair in preparation for the dyeing process. The grooved lines of the boards are hung vertically when pouring the liquid dye (fig. 36c) so that the liquid runs through the grooves. Tannin extracts called *para* (imported dye), from a type of mangrove tree, are employed for the dye to imitate the brown color typical of *Oshima kasuri*. This dye is poured over the set of boards which are wet and expanding with hot water. Next, a dye solution of imported logwood for a black tint is poured on the set, followed by a mordant solution. The mordants are chemical solutions such as potassium dichromic acid ($K_2Cr_2O_7$) and iron nitrate ($FeNO_3$). In order to imitate the dark blue color of the *Ai Oshima*, synthetic dye called indigo pure and logwood were used.

As seen in *Oshima kasuri*, if the design of the textile calls for multiple colors, these are applied after the base dye is finished. Synthetic dyes on *itajime kasuri* were first employed in 1937. After the resisted *kasuri* threads are taken off the board, they are stretched and straightened by tying both ends on bamboo sticks. Two flat bamboo sticks wound with a cotton yarn are used to rub the synthetic dye into the resisted area (fig. 38).

In a single round of dyeing, large quantities of clearly resisted threads are obtained. An important task after dyeing and before the warp *kasuri* threads and the warp threads of the ground colors are finally arranged to be rolled up on the back beam, is adjusting the warp *kasuri* threads as planned in the designs of the graph paper (fig. 36d). The total number of warp threads amount to an average of 1140 to 1200 for one kimono design.

Use of Graph Paper for Design and Technical Transfer

Knowledge and competition

By collecting and comparing dates and records on the development of *kasuri* techniques from individual *kasuri*-producing regions and by comparing samples of textiles produced during these periods, it has been possible to understand the flow of technical knowledge among craftsmen who produced a significant quantity of textiles for traditional Japanese garments in the first half of the twentieth century. In this research, it has become apparent that imported knowledge of the use of graph paper made it possible for craftsmen of *itajime kasuri* to copy the *orijime* design patterns of the expensive *Oshima kasuri*. It was graph paper that also made it possible for *Oshima kasuri* weavers who were leaders in the production of high-quality *kasuri* textiles to make their designs more sophisticated and thus more desirable.

The transfer of knowledge starts in Nishijin, Kyoto, the most advanced area in weaving technology in Japan at the time. The weavers of the Nishijin district had brought back the technique and tools for the Jacquard mechanism from Lyon in 1873.[14] They were influenced not only by the technique, but also by the systematic idea that was later employed for designing *kasuri*. Isezaki, a site northeast of Tokyo, known for the production of board-pressed *kasuri*, invited a technician from Kyoto in 1914 to learn the use of graph paper.[15] Three years later, in 1917, Isezaki was already able to copy *Oshima kasuri* designs by using the graph paper technique. Oshima craftsmen at this time were already producing intricate designs depending heavily on the skills and memories of the *orijime* craftsmen and weavers, but they did not yet design using graph paper.[16]

In 1918, craftsmen from Musashi Murayama on the outskirts of Tokyo invited a technician from Isezaki to teach them the methods of using graph paper and making grooved boards for *kasuri*.[17] In a small museum in Murayama, a sample (no. 33) that uses the complex design of one *kasuri* thread in addition to the traditional 2K-2G pattern is exhibited today (fig. 39).[18] Murayama craftsmen had copied the design of Isezaki textiles that had been previously copied from an *Oshima kasuri* textile design in 1917.[19] Through the research for this article, a fragment of a Taisho-period fabric (fig. 40) with the same design has also been discovered in Oshima.[20] It is apparent that Oshima, advanced in design and technique, was the originator of this design although at this time the craftsmen in Oshima did not yet use graph paper. *Itajime* craftsmen in Murayama had used the same number "thirty-three" as Isezaki had done to name their first piece. The textile samples and the coinciding call number show that the transfer of designs as *kasuri* patterns was easily carried out between areas of *kasuri* production by using graph paper.

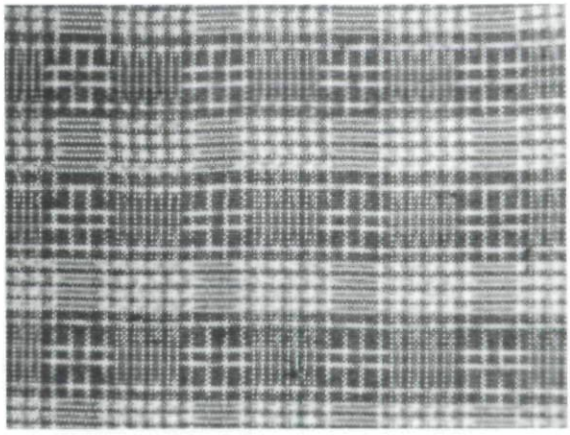


Fig. 39. *Itajime kasuri*, called no. 33, found in the Museum of the Cooperative Association of Murayama Weavers. The design uses an additional single *kasuri* thread between the 2K-2G *kasuri* design.

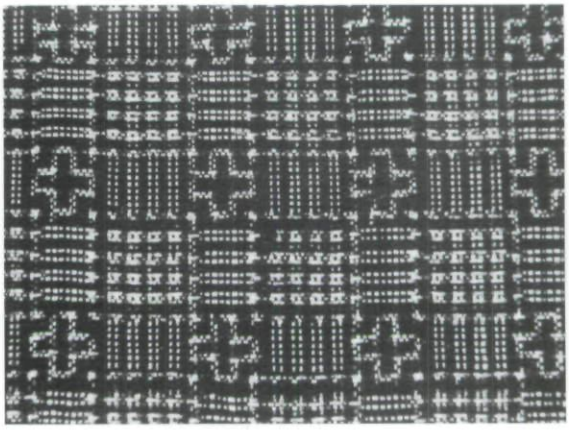


Fig. 40. The original *Oshima kasuri* fragment from the Taisho period, which became the base sample for *itajime kasuri* no. 33, produced in Isezaki and Murayama. Courtesy The Research Institute for Oshima Tsumugi in Amami Oshima.

In 1919, the methods of using graph paper were transferred from Isezaki to Amami Oshima. It is recorded that Chōkichi Takahashi, the instructor of a technical school in Isezaki, was invited to the island to teach. Two aged draftsmen from Amami Oshima, who learned the technique in the early Showa from Takahashi, explained that the design and *orijime* process were previously done by the same person but that after the establishment of the profession of

drafting the pattern on graph paper, a division of labor occurred.[21] The sophistication of the design of *Oshima kasuri* advanced by leaps and bounds after 1927. The design patterns at this time used the variations of the 2K-2G-1K-1G pattern that was drafted on graph paper. By then, it was possible even for relatively inexperienced weavers to weave the *Oshima*, whereas in the past, only those craftsmen with the best skills and a sharp memory were able to do so. This division of labor, as well as the establishment of the Research Institute for Oshima Tsumugi, built in 1927, contributed to this development. Between 1927 and 1941, when Japan joined World War II, the Research Institute created many pictorial and intricate *kasuri* designs using the techniques of drafting on graph paper.

Drafters were trained in the Research Institute to draw *kasuri* designs on graph paper. Several kinds of graph paper were used, depending upon the number of warp threads in the woven width, which corresponded to the density of vertical and horizontal lines on the paper. Intricate patterns were designed in order to create an effect of dimensionality in the woven patterns. In forming the patterns, only limited variation of colors and limited elements of point and short line combinations were available to the designers. This "lack" forced them to create ways to enhance their design vocabulary.

After the use of graph paper was introduced in Amami Oshima, many outstanding sophisticated patterns were soon created with ease. The weavers appreciated the continuous *kasuri* weft, which resulted from designing on graph paper, because they were able to avoid the use of multiple shuttles; however, there were also drawbacks. The designs were now easily copied in other *kasuri*-manufacturing areas where graph paper was used. *Kasuri*-manufacturing areas which used the less labor-intensive *itajime* technique were able to easily copy the new designs produced in *Oshima kasuri*. The use of graph paper stimulated production in both areas. As design leaders, Oshima draftsmen tried to produce more complex and sophisticated designs that were difficult for others to copy in order to keep their originality and market edge.[22] The followers looked for ways to make better and faster copies of those originals.

Further Developments through the 1950s

Blurring the edges of *itajime kasuri*

One of the theories of the derivation of the word *kasuri* was that it originated from the word *kasureru* which meant "to blur" or "to be hazy." It is natural that *kasuri* patterns made of intersecting warp and weft threads would never result in a perfect circle or a sharp-edged square. But *orijime* craftsmen and *kasuri* weavers for decades had striven to make their finished designs look as precise and as sharp as possible. In other words, they were trying to eliminate the blurred edges as much as possible even though this could never be perfectly realized. Around 1930, a trend against these efforts occurred.[23] Some *itajime* craftsmen believed that a blurring effect on the edge of their patterns would be preferable and would make the finished product closer to the consumer's original image of the word *kasuri*, which reminded them of the word "to blur." It is thought that this was a new idea introduced by some *itajime* craftsmen to return to imitating the original primitive *kasuri*, believed to have been so named owing to its physical characteristic of being blurred at the edges. They wanted to imitate the developed *Oshima kasuri* textiles but also return to the origin and tap the conceptual image of *kasuri* that consumers held which was derived from the sound of the word (fig. 41).

In order to obtain this effect, highly technical skills were needed for carving the plateaus of the raised grooves on the clamp boards which were to be used to resist the dye on the threads. To do this, the plateaus of the grooves were diagonally sliced at both edges (fig. 42), thus softening the outlines of the designs. Elaborations were made also in the dyeing process. The set of finished boards was at first clamped loosely, and brown dye was poured onto the threads wound to the boards. Then the clamp of the same set of boards was further tightened to make the top of the plateaus flatten. Next, black dye was poured onto it, resulting in a gradation effect on the finished threads.

It is not certain why the *itajime* craftsmen went to such lengths to obtain an effect that was counter to their previous efforts. One year before the first blurred *itajime kasuri* was produced in 1910 in Isezaki, a series of textiles called Meisen (pronounced May-sen) were produced; these also were produced in Isezaki and included textiles with blurred designs similar to those of

kasuri. This may have been the start of a fashion trend for blurred design motifs. Another factor in this change may be that even when the craftsmen and designers of the board-pressed *kasuri* succeeded in closing the gap between their work and the genuine *Oshima kasuri*, it was always possible to identify an *itajime kasuri* (fig. 43). Resist-dyed textiles using the *itajime* technique often carried short lines near the selvedges of the finished textile unless the designs consisted of small, equally spaced repeats. These marks resulted from continuously carved lines on the edge of the boards that existed for the functional reason of helping to relieve the pressure from the clamped *itajime* boards.

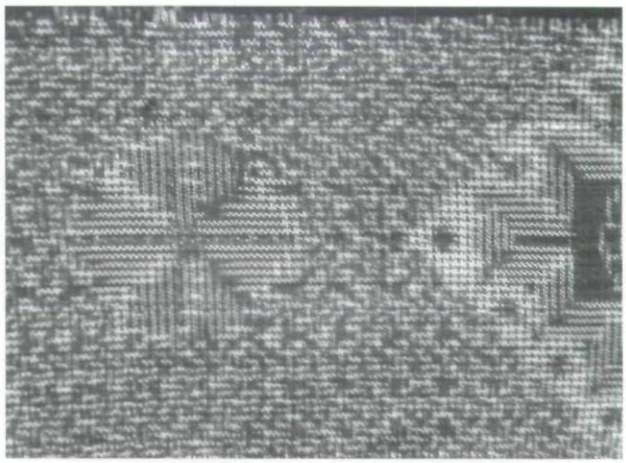


Fig. 41. Blurred *itajime kasuri* fragment with *Oshima* design, in fashion in the 1930s.

Hogushi techniques for the average consumer

The true *Oshima kasuri* was economically beyond the reach of most people, at least for daily use. But in aspects such as the weave patterns of 2K-2G and 2K-2G-1K-1G, the tradition of *Oshima kasuri* penetrated through the different product grades and persisted in making "*kasuri*-style" textiles for common fashionable apparel. Meisen, a product name that denotes a large group of kimono textiles of different designs and produced by using a variety of techniques, was often used for daily kimono. The name Meisen was first used in 1888 and later some Meisen carried the *kasuri* style (fig. 44). Its popularity continued through the 1950s. Although some Meisen were just textiles for at-home clothing, some were designed as fabrics for more fashionable wear. For example, waitresses of cafés, which was a modern profession for women in the Taisho period, wore kimono made of Meisen topped with starched white aprons. Teenage girls who attended schools of higher education wore kimono made from Meisen under their uniforms of long *hakama* skirts. They were considered fashionable women of the new age. In the Showa period after World War II, young women who were getting married took kimono made from Meisen as a bride's outfit and later converted these into blankets to cover their newborn babies when they carried them on their backs. The popularity of this textile resulted partly from its reasonable price and partly from the variations in designs that resulted from the many innovations in technique that the producers used throughout the period.

One example of a *kasuri*-style textile among Meisen products that shows evidence of weaving

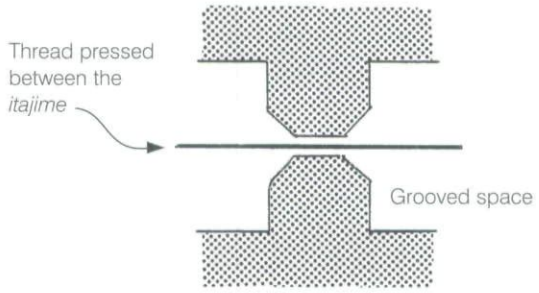


Fig. 42. Elevation of the sliced plateaus of the groove on the *itajime* boards, which creates the blurring effect of *itajime*.

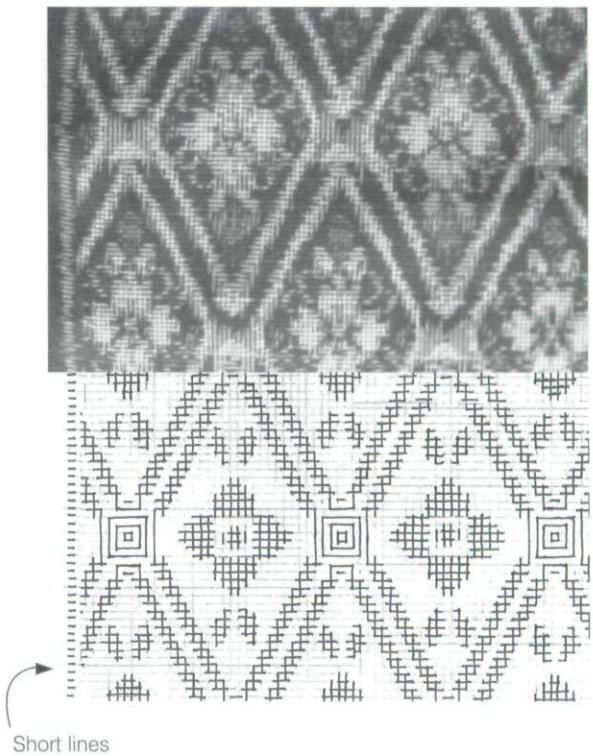


Fig. 43. Detail of the selvedge of *itajime kasuri* and the draft denoting the selvedge. The short lines help to distinguish an *itajime kasuri* from *orijime kasuri*.

Fig. 44. *Hogushi kasuri* of Isezaki Meisen in Taisho period.

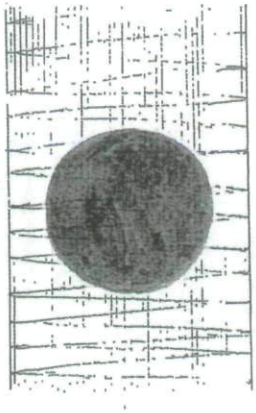
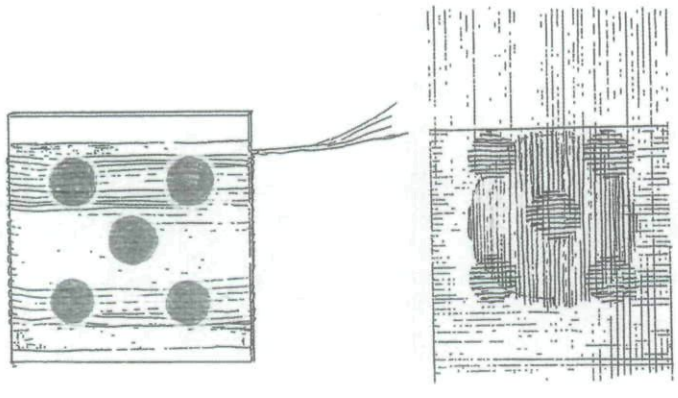


Fig. 45. Diagram of process of the *hogushi kasuri*. Design printed on temporary woven warp threads.



a b

Fig. 46. Diagram of the production process of *heiyo kasuri*. (a) Another design is printed on the weft threads wrapped on the board. (b) The final woven textile shows the overlapping images of warp and weft.

methods from the *Oshima* and *itajime kasuri* techniques is a group of fabrics woven using the slid *hogushi-ori* technique. This was a *kasuri*-style textile but did not employ resists on silk threads to create the designs in its weave. The textile uses color prints to create its designs. The process for the production of this textile consisted first of printing the threads used in the final weave. Silk warp threads are roughly woven by putting cotton weft in at every ten to fifteen centimeters.[24] The finished cloth is taken off the loom and lightly starched, and patterns are printed by either dye paste or by discharging paste using stencils (fig. 45). After steaming the printed cloth to fix the dye, the warp threads are rolled onto the back beam while taking out the cotton weft yarn.

An application of the *hogushi kasuri* is the *heiyo kasuri* started in Isezaki in 1918. The overlapping images in the *heiyo kasuri* are woven using printed weft threads as well as printed warp threads. The printing process for the silk weft threads starts by forming a bunch of threads in groups of three to five strands (fig. 46). These are wound around a wooden board the width of a kimono. The board is previously wrapped with newspaper, and the weft threads wound on this paper-wrapped board are stenciled and dyed with the same pattern on both sides of the board. The newspaper with the threads is then slipped off the board to be steamed and dried to fix the dye. The finished threads are then woven into the final product.

In weaving the slid *hogushi-ori* textiles, the 2K-2G or 2K-2G-1K-1G thread alternation found in traditional *Oshima kasuri* was used. A good example of this style is the Murayama slid *hogushi-ori* textile that was woven in 1957 (fig. 47). It is interesting to note that craftsmen in Murayama known for board-pressed *kasuri* adhered to the intricate patterns created by the *kasuri* weaving technique even when making textiles used in kimono for daily use. In the slid *hogushi-ori*, the previously printed warp threads are first alternately separated into halves on two cross sticks (fig. 48). The craftsman follows the 2K-2G-1K-1G thread order and picks up two warp threads, leaving the next two warp threads, picking up one warp thread, leaving one warp thread, and so on as in the *Oshima kasuri*. When all of the warp threads are divided in this manner, half of them are pulled forward using a special tool (fig. 49) so that the threads with the printed pattern are slid the distance of a repeat (fig. 50). When weft silk threads for a 2K-2G pattern were printed, a wooden board, double the width of a kimono,

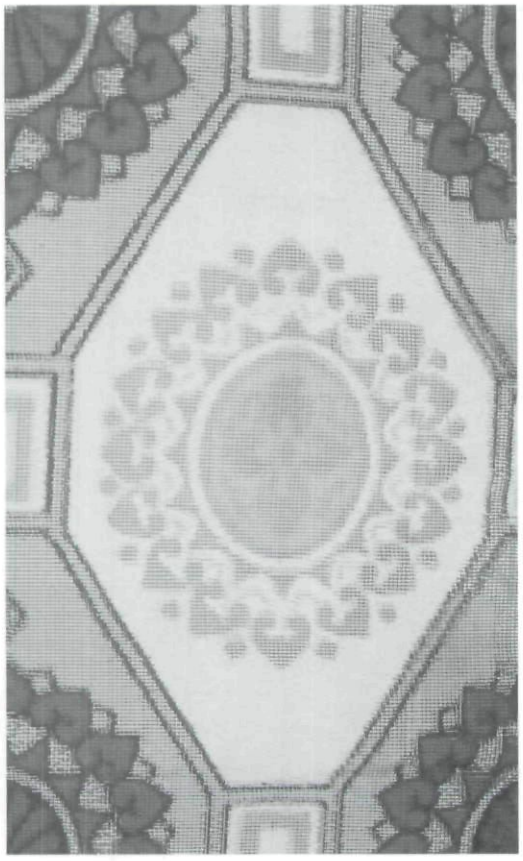


Fig. 47. Slid *hogushi kasuri* from Murayama, created by Mr. Yoshiyasu Tashiro.

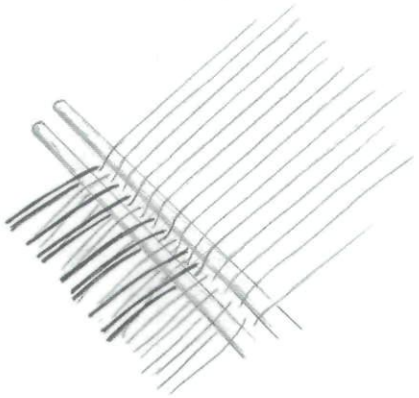


Fig. 48. Diagram of a step in the production process of slid *hogushi kasuri*. Picking up the 2K-2G-1K-1G warp threads on the cross sticks in preparation for sliding half of them.

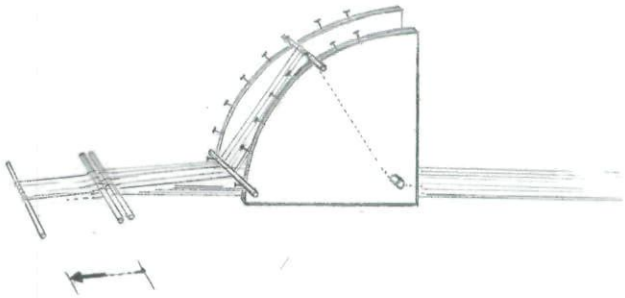


Fig. 49. Diagram of process of the slid *hogushi kasuri*. To move the design an equal distance, a tool called a *hashigo*, literally a "ladder," is used.

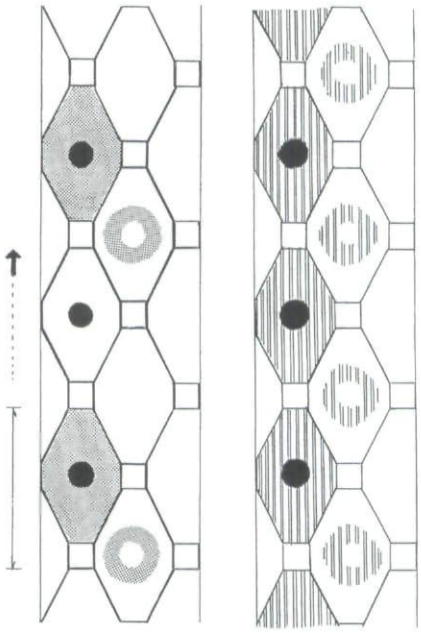


Fig. 50. Diagram showing the process of slid *hogushi kasuri*. Printed warp threads (left). Slid warp threads (right).

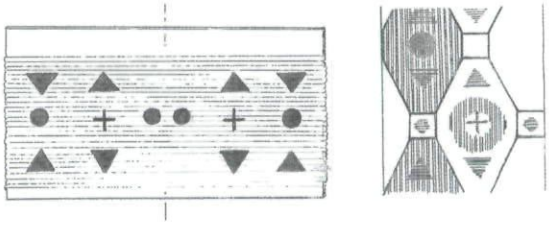


Fig. 51. Printed weft threads on the front of the board (double width of kimono). The back side of the board is left white to produce 2K-2G *kasuri*-style (left). Resulting image of overlapping printed warp and printed weft (right).

was used (fig. 51). Since the threads are encircled around this board, two identical patterns are printed on the front side of the board. The result is two printed weft threads followed by two unprinted weft threads, con-tinuously alternating in the weave to create a 2K-2G kasuri-style pattern for the weft.

The slid *hogushi-ori* method of dyeing and weaving was invented in Isezaki, and many variations of sophisticated thread orders are found there. In the fabric shown in figure 52, the weft threads are woven with a 1K-3G weave pattern, and the warp threads use a 2K-2G pattern. The warp is slid in the same way as described above (fig. 53). The only difference from the 2K-2G-1K-1G Murayama slid *hogushi kasuri* was that in this Isezaki version, only half of the front side of the board wound with the silk weft threads was printed with the black pattern (fig. 54). When woven in the final process in the width of a single kimono, one printed black thread is followed by three white threads, and this order is repeated in the weave. In this manner, techniques of weaving and dyeing used in producing *Oshima kasuri*, a top-grade product, filtered through the stratum of fabrics produced for other purposes and targeted toward a separate group of consumers. The energy of the craftspeople to challenge old ways and develop better methods of producing textiles that intrigued a popular market was one factor that made possible this phenomenon. The other was the newly imported knowledge of graph paper, a new vehicle used to transfer design and weave information between the different *kasuri* production sites of Japan.

Fig. 52. Fragment of a textile using the slid *hogushi kasuri* technique of the 2K-2G-1K-1G *kasuri* style, made in Isezaki.

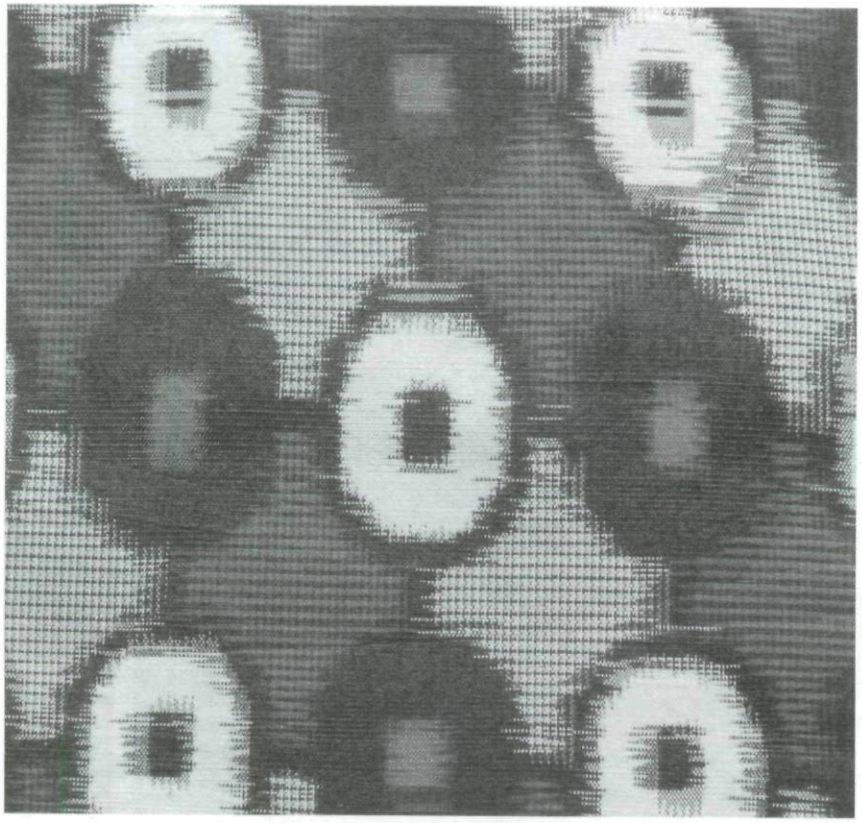


Fig. 53. Diagram showing the process of slid *hogushi kasuri*. Printed warp threads (left) and slid warp threads (right).

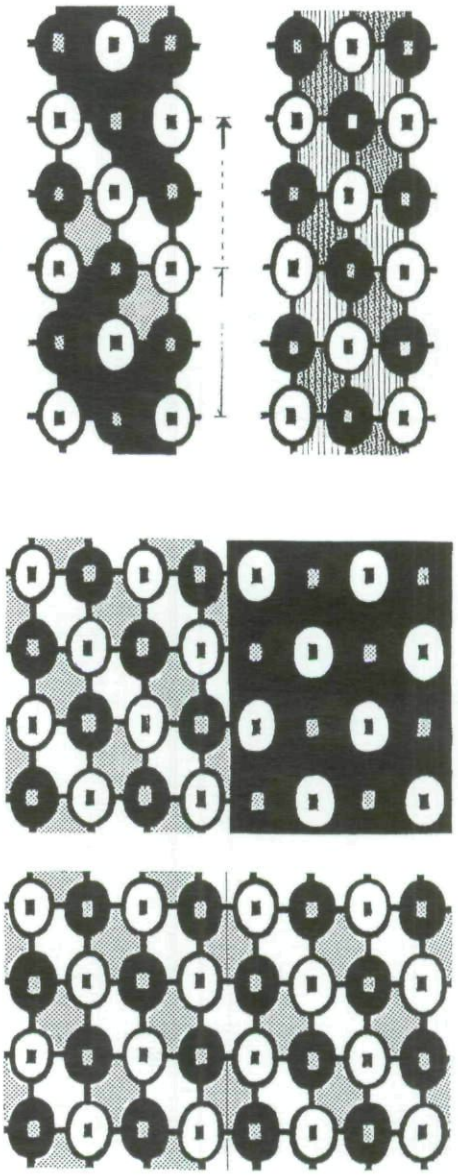
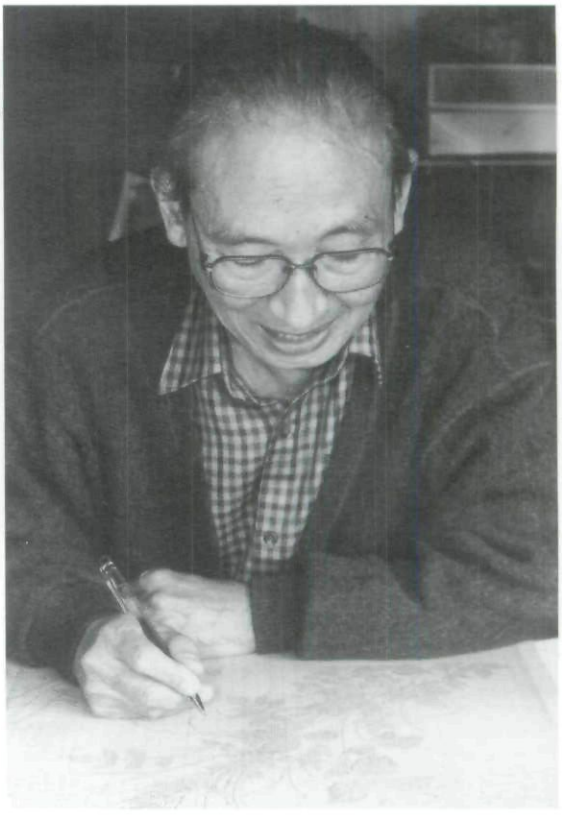


Fig. 54. Diagram showing a printed weft threads on the front of the board (above) and a printed weft threads on the back of the board (below).

a



b

Fig. 55. Portraits of a team of craftsmen under the *orimoto* named Tokugen, run by the Ono family. This team created the *Oshima kasuri* in figure 2 (p.4). (a) The Ono family is the manager and conductor of the team; (b) the drafter, the late Mr. Genyoshi Ohyama; (c) the skillful weaver, Mrs. Terue Fujimura; (d) the indigo dyer, Mr. Fuminori Ohshige. The *orijime* craftsman, Mr. Fujio Takeyama, also appears in figures 21 and 22.

c

d

Conclusion

In the beginning stages of *orijime* when the design patterns for the final weave were becoming more intricate, some *kasuri* weavers, no matter how extensively they were trained, could not weave the final textile as it was planned in the designer's mind. Graph paper solved this problem. At the same time, this one sheet of paper was a revolution that started technical transfers among different craftspeople with different backgrounds and history.

The graph paper started a new page in the history of *kasuri*. A division of labor among *kasuri* craftspeople occurred. Factories and large ateliers were opened. Larger quantities of these textiles were produced and utilized by more people. Technical transfers and transfers of designs occurred between producers who tried to make more textiles by more economical methods. Wholesalers brought *kasuri* to ever larger numbers of people and took their products further away from the regions of production, reaching even more consumers. Different grades of textiles were designed to target a wide variety of consumers with different budgets.

When weavers and *kasuri* designers produced finished textiles for those they knew, the weavers and wearers taught each other. The weavers taught the wearers the value of the product they were creating, and the wearers taught the weavers which designs they preferred. But as the weavers moved further away from the wearer or vice versa, on account of mechanization and the introduction of modern economic systems, less was known by the wearers about what was behind the textile they wore. For their part, the weavers lost track of what their customers wanted. Now they had to create a trend.

From the Meiji period to the present day in Japan, fashion trends have been largely controlled by the leaders of commercial industries. Through the use of graph paper, designs were easily transferable, and many *kasuri* producers from different sites put their efforts into making imitations of popular designs by high-grade designers, such as those of *Oshima kasuri*. This led to the lessening of regional diversity, one of the reasons for the disappearance of a tradition. Those who grew up during World War II did not have the chance to learn about their traditional costumes and became disinterested in *kasuri* and other textiles used for kimono.

When the highest quality craft is produced, there exists a meeting of highly skilled craftsmanship and the appreciation of the patrons. With the loss of knowledgeable patrons, the use of the intricate 2K-2G-1K-1G pattern combination decreased tremendously, starting around 1955. Just as the graph paper solved a problem in the Taisho period, a new remedy must now be found if the craft is to survive. In the present day, no young people are learning the craft that in the past held such an important position in the history of modern Japanese garments. Today in this difficult situation, there are only a few craftsmen producing the highest quality *Oshima kasuri* in Amami Oshima and Kagoshima. One outstanding group is supervised by the *orimoto* Mrs. Tsuyako Ono, her son Kiichiro Ono, and his wife Noriko (fig. 55a). With their skilled craftspeople (figs. 22, 55b-d), they are still determined to produce *Oshima kasuri* textiles with the 2K-2G-1K-1G pattern combination. The craftsmen's desire to work for a better quality product still exists today as it did in the revolutionary period when Western technology worked as a catalyst to enhance innovations and competition among *kasuri* producers. In fact, the graph paper is still used today. But the interest for *kasuri* among a wide populace has diminished among wearers, and there is no quick solution.

Acknowledgments

I would like to express deep appreciation to Professor Tomoyuki Yamanobe, who has written extensively on the subject of Japanese textiles in the Meiji period. Without his guidance, this work would not have been possible. I am also very grateful to Dr. Mary Dusenbury, who introduced me to *The Textile Museum Journal* and carefully edited my manuscript. Thanks also to the Reseach Institute for Oshima Tsumugi in Amami Oshima, the Murayama Weavers Cooperative Association, and the craftspeople who perform the various specialized tasks surrounding the production of *Oshima kasuri* cloth. I regret that I cannot express my gratitude to the late Mr. Genyoshi Ohyama, who taught me the complex Oshima techniques as carefully as if I were his apprentice (fig. 55b). Naomi Nagano, a graduate student of Chinese Art History at Sophia University, Tokyo, translated this article. Without her extensive knowledge of Japanese history and her ability to understand complex *kasuri* techniques, this article could not have appeared in English. Finally, I would like to thank the peer reviewers and editors of *The Textile Museum Journal* for their excellent suggestions and care in producing this article. Any errors that remain are, of course, my own responsibility.

About the Author

Keiko Kobayashi is a weaving artist and researcher of traditional weaving. After graduating from the California College of Arts and Crafts, Oakland, she studied Japanese textile history under the direction of Professor Tomoyuki Yamanobe at Tama Art College in Tokyo and wrote her M.A. thesis on "Doublecloth Weaving on Back-strap Loom in Hachijo Island." She learned to use the Jacquard mechanism in the Nishijin weaver's district in Kyoto. She has published several articles on weaving in Japan, focusing on cross-cultural influences of technology and design.

Index of Textile Institutes and Cooperative Associations

本場奄美大島紬協同組合
Honba Amami Oshima Tsumugi Kyōdō Kumiai

伊勢崎織物協同組合
Isezaki Orimono Kyōdō Kumiai

鹿児島県大島染織指導所
Kagoshima-ken Oshima Senshoku Shidōsho

久留米絣技術保存会
Kurume Kasuri Gijutsu Hozonkai

村山織物協同組合
Murayama Orimono Kyōdō Kumiai

Notes

1. Yamanobe 1996, p. 11.

2. Dusenbury 1993, p. 59. Mary Dusenbury defines Japanese *kasuri* as "thread-resisted textiles, cloth in which warp and/or weft yarns are partially tied, bound, or compressed before they are dyed so that when they are stretched on the loom as warp and/or woven in as weft, the sections reserved from the dye form a predetermined pattern in the finished cloth."

3. Since 1950, in Japan, traditional techniques that are determined worthy of being handed down to the next generation have been designated as important cultural properties by the Agency for Cultural Affairs. In other words, important art and craft techniques are protected by the Japanese government. The craftsman so designated is commonly called a "Living Treasure." However, *Oshima tsumugi* was not protected by this law because its production is carried out through division of labor, not by a single master craftsman. Also, the techniques of *orijime* compared to hand-tying *kasuri* are seen by officials as too mechanized.

4. The *Oshima kasuri* factory at its peak was more like a systematized textile atelier in which the *orimoto*, or business manager, oversees the whole production. The *orimoto* takes care of both the business matters and the designing of the finished product. He hands the design idea to the draftsman who drafts the design on graph paper and gives it to the *orijime* craftsmen. The *orijime* craftsmen weave the resists and hand these to the dyer. The *orijime* cloth and threads are dyed and then prepared on a portable beam which works like a cassette that could be attached to the weaver's loom so that the weaving process can be started immediately. In some cases, after the dyeing process, there may be other specialized craftspeople who warp the threads and place them on the loom. The process may be carried out in one large space (such as a factory or an organized atelier), or it may be carried out in the respective studios that are situated not too far from each other. The final textile is returned to the *orimoto* and then handed to several large-scale wholesalers with a nationwide clientele.

5. The definition of *osharegi* has changed throughout the history of Japanese garments. With history, time, place, and occasions for wearing *kasuri* kimono have greatly changed. In earlier periods, *kasuri*, no matter how high the quality, how artful its manufacture, or whether it was made of the best silk, was never worn as formal ceremonial clothing. Such occasions ranged from weddings to tea ceremonies and even included going to a traditional theater (such as the Noh or Kabuki). It was never worn on a visit to an elder person's home. A silk *kasuri* kimono of high quality such as *Oshima kasuri*, in other words, was used as fashionable town wear, to have lunch with a friend or to go shopping. Today, people wear the *Oshima kasuri* to theaters, and one uses the *kasuri* kimono when practicing tea ceremony or flower arrangement (not in the ceremony). But still one never sees the *kasuri* kimono worn by guests at a wedding.

6. Shigemura 2001, pp. 40–43. Until recently, the transmission of the *orijime* technique to Amami Oshima was believed to have come from Nagoya, but there is no known evidence of this technique

being used in Nagoya. Although this story has often been quoted, it is incorrect. The recent publication by Toshinori Shigemura provides specific dates when textile manufacturers from Amami Oshima made research trips to learn about the *orijime* technique in Kurume. The dates for the Kurume research are earlier and more reliable (occasions and people involved are more specific) than those quoted in the Nagoya story.

7. *Orijime* for cotton kimono was started in Kurume. The *orijime* in Kurume was used to weave textiles for casual work wear; therefore, the technique was used to produce simple designs such as lined small dot patterns, larger dot patterns, and bold grid patterns. Alongside the simpler *orijime* patterns, hand-tied techniques were used to make pictorial patterns for the weft yarns of more intricately designed textiles. In later times, bold warp and weft patterns continued to be used as casual kimono fabric, for futon (Japanese bedding) covers, etc.

8. Another name for *orijime* is *shimebata*, 締機. The word *shimebata* literally means tightening on the loom.

9. *Igusu* is the local name used in this area for Irish moss.

10. In the *orijime* process, weft threads for several kimono are resisted at once to increase productivity. When the resists for the weft threads are woven, first, the number of the repeated weft patterns are calculated for the length of a textile for one kimono. The length of woven textile needed to complete a single kimono is approximately twelve meters. If the repeats are ten centimeters each in height, the *orijime* craftsman calculates that he needs 120 repeats for twelve meters of textile to complete one kimono. When the shuttle is wound with a bunch of threads consisting of twelve silk strands, one flat shuttle in one *orijime* process creates a total of twelve threads each with the same resists of one repeat per strand. In other words, this number of resisted threads will amount to 1.2 meters worth of finished textile when woven. Therefore, in order to create twelve meters of textile, ten shuttles will be used to create the *orijime* for all 120 resisted repeat patterns in one kimono. Because the usual length of the weft threads wound on the shuttles is not so long, one continuous strand of thread is just about enough to cover one repeat or a few repeats. That means that several strands of threads are needed to complete the whole kimono with the same repeated pattern. This is why several silk threads (in this case twelve) are bunched together on the shuttle to weave the repeats. Most frequently, repeats for eight to ten kimono are resisted at once to make the process even more efficient. If silk weft threads for eight kimono with identical repeat patterns are needed, eighty shuttles (ten shuttles with twelve silk threads on each shuttle multiplied by eight kimono) are employed in this *orijime* process. Thus, multiple flat shuttles are run through the shed consecutively and are stored in a box, as explained in the text and as shown in figures 23 and 29. The number of shuttles varies according to how many finished kimono are needed in the end.

11. Shigeno 1973, p. 102. The use of mud for dyeing was originally practiced on Hachijō island of Tokyo. The technique was transferred to weavers of Kumejima island in Okinawa in 1632. In turn, Amami Oshima weavers learned of this technique from Kumejima craftsmen and employed it to dye silk *tsumugi*.

12. *Oshima kasuri* has been produced at two major sites. The production of *Oshima kasuri* in Kagoshima City was started in the early Meiji period (1885) when some craftsmen moved to this location from Amami Oshima island where the *orijime* technique had just been started. After World War II, Amami Oshima was occupied by the United States (1946–53); this situation led to more craftsmen moving to the city.

13. Two different dates are given in two separate publications regarding when Isezaki producers learned the *itajime* technique from Yamato (Nara). *Isezaki Orimonoshi* (Isezaki Weavers Cooperative Association 1966, p. 27) indicates that the date was 1890. *Isezaki Orimono Dōgyō Kumiaishi* (Isezaki Weavers Cooperative Association 1931, p. 61) indicates that the date was 1887.

14. In 1872, three Nishijin weavers, representing Kyoto Prefecture, were sent to Lyon to study weaving. These weavers returned to Japan in 1873, bringing back the Jacquard mechanism, the fly shuttle, card-punching machine, and metal reeds.

15. Isezaki Weavers Cooperative Association 1931, p. 509.

16. Amami Oshima Research Institute for Oshima Tsumugi 1979, p. 71. It is noted that graph paper appeared in Amami Oshima in 1915. However, graph paper was not commonly used until Chōkichi Takahashi from Isezaki explained how to use it for designing.

17. Murayama Weavers Cooperative Association 1982, p. 385.

18. Ibid., p. 93. An original *kasuri* textile with the same design was originally denoted as no. 33 in Isezaki. The technique was taught by Isezaki craftsmen, and Murayama craftspeople adopted this name to indicate their *kasuri*, woven using their newly gained knowledge.

19. Isezaki Weavers Cooperative Association 1931, p. 19. It is noted here that in 1917, Isezaki craftsmen started to copy true *Oshima kasuri* designs by using the graph paper and *itajime* techniques.

20. A textile fragment with the same design as those denoted No. 33 in Isezaki and Murayama is found in an album consisting of a collection of textile fragments now conserved in the Research Institue for Oshima Tsumugi. The textile samples contained in this album were mostly woven in the Taisho period before graph paper was used. It is noted in the album that the fragments were collected by an elder brother of a Mr. Toru Nakamura in the town Nase of Amami Oshima.

21. Mr. Genyoshi Ohyama and Mr. Masaaki Tabata, who worked as draftsmen, were taught how to use graph paper by Chōkichi Takahashi in the early Showa period. The training was given in preparation for the establishment of an institution which later became the present Research Institute of Oshima Tsumugi. In the field interview that lasted from the summer of 1996 to the spring of 1997, both men explained that the complex and pictorial *kasuri* patterns in Amami Oshima started after Takahashi came and taught there.

22. One famous way by which *Oshima kasuri* designers tried to protect their designs from being copied by *itajime kasuri* craftsmen was by distancing the patterns in the textile design. In 1924, Chōkichi Takahashi created an *orijime* process for warp *kasuri* employing a doublecloth structure woven with four shafts. This was a method that worked as a solution to creating warp *kasuri* for designs that were spaced a long distance apart, in one direction. It also became the kind of design that was difficult for *itajime* craftsmen to copy because hundreds of boards were needed to imitate such a textile pattern using the *itajime* technique.

23. Cooperative Association of Isezaki Weavers 1931, p. 18. The *hogushi-ori* technique, which was used to gain a blurring effect in the outlines of the designs in a woven pattern, was started in Isezaki in 1909. This design idea of a blurred outline in the patterns was later used in *kasuri* textiles. Blurred *itajime kasuri* designs were first produced in 1910.

24. The idea of using loosely woven cloth as the base for hand-painted designs on warp threads was used for the French silk velvet called *Grégoir*, produced in the early nineteenth century. In this textile, weft threads from the loosely woven cloth were later taken out. The technique used in producing *Grégoir* was later employed in *tafettas imprimé sur chaîne* (plain weave with printed warp) around 1850. The differences between the two textiles were that one was velvet and the other plain weave and that one was hand-painted whereas the other was printed. Silk woven only with printed warp threads was fashionable in the mid-nineteenth century in Lyon. It is very likely that this design idea and weaving technique were picked up by Japanese weavers who had studied in France. Since textile samples are easily transportable from one area to another, the *hogushi-ori* technique could have stemmed from these Western designs and weaves.

References

Amami Oshima Research Institute for Oshima Tsumugi

1979 *Sōritsu Gojushūnen Kinenshi* [History of *Oshima Tsumugi* on the Fiftieth Anniversary of the Research Institute for Oshima Tsumugi in Kagoshima-ken]. Amami Oshima.

Amami Oshima Tsumugi Cooperative Association

1981 *Honba Amami Oshima Tsumugi Kyōdōkumiai Sōritsu Hachijushūnen Kinen* [History of Amami *Oshima Tsumugi* on the Eightieth Anniversary of Amami Oshima Tsumugi Cooperative Association]. Amami Oshima.

Dusenbury, Mary

1978 Kasuri: A Japanese Textile, *Textile Museum Journal*, vol. 17, pp. 41–64. The Textile Museum, Washington.

1993 Kasuri, *Beyond the Tanabata Bridge: Traditional Japanese Textiles*, pp. 57–74. Edited by William Jay Rathbun. Thames and Hudson, London.

Fayard, Pierre

1983 Elaboration et fabrication des tissus chinés à la branche, *Bulletin du CIETA*, nos. 57–58, I–II, pp. 61–76. Centre International d'Etude des Textiles Anciens, Lyon.

Isezaki Weavers Cooperative Association

1931 *Isezaki Orimono Dōgyō Kumiaishi* [History of the Cooperative Weaving Association of Isezaki]. Isezaki.

1966 *Isezaki Orimonoshi* [History of Isezaki Weaving]. Isezaki.

Kagoshima Research Institute for Oshima Tsumugi

1955 *Senshokugaku Taiyō* [Textile Studies: Techniques of *Oshima Kasuri*]. Kagoshima.

Kurume Kasuri Preservation Association

1969 *Kurume Kasuri.* Kurume.

Murayama Weavers Cooperative Association

1982 *Murayama Orimonoshi* [History of Murayama Weaving]. Tokyo.

Shigemura, Toshinori

2001 *Amami Oshima Tsumugi no Kasuri Shimebata Seizō Hiwa* [The Secret Story of How the *Orijime Kasuri* Technique was Developed in Amami Oshima], *Senshoku α*, Senshoku to Seikatsusha, no. 245, August. Kyoto.

Shigeno, Yūkō

1973 *Amami Senshokushi* [Textile History in Amami Oshima]. Amami Bunka Kenkyūjo, Kagoshima.

Yamanobe, Tomoyuki

1974 *Kasuri.* [Series of Japanese Textile Arts.] Unsodo, Tokyo.

1987 Japanese Kimono in the Meiji Period, *Dressed in Splendor: Japanese Costume, 1700–1926*, edited by Merrily A. Peebles, pp. 13–15. Translated by Keiko Kobayashi. Santa Barbara Museum of Art.

1996 Kyoto Modern Textiles, *Kyoto Modern Textiles Exhibition.* Translated by Fusako Matsui and Keiko Kobayashi. Kyoto Textile Wholesalers Association, Kyoto.

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